ENGINEERING NEWS-RECORD

Low-cost school: Goal of new national drive *p. 21*

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"Old Man Winter's" icy breath set the deadline for the CB&I erection crew that assembled fabricated steel sections for piers 19 and 20 of the $80-million Mackinac Straits bridge in northern Michigan. If the work had not been completed before ice started to form in the Straits serious damage could have been done to the caissons.

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Mars Lumograph lead)

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Brass tip; 6 bands of serrations prevent slipping.

Mars-Lumograph lead; ribbed to hold securely. Does not flake or smudge; so opaque, inking-in is unnecessary.

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CONTENTS ON PAGE 17

Waldo G. Bowman
Editor

Eugene E. Halmos, Jr. ..... *Managing Editor*
John J. Christie ..... *Asst. Managing Editor*
Van Tuyl Boughton ..... *Transportation, Power*
Frederick S. Merritt ..... *Architectural, Structural*
Edward R. Wood ..... *Research*
Arthur J. Fox, Jr. ..... *Hydraulic, Water Supply, Sanitation*
John P. Chamberlain ..... *Business and Finance*
John R. Owen ..... *Municipal*
Charles J. Harding ..... *Labor, Men and Jobs*
Theodore B. Merrill, Jr. ..... *Materials and Equipment*
Clyde C. Henning, Sr. ..... *National Affairs*
Stanley C. Jensen ..... *News, International*
Barbara Lamb ..... *News*
J. Roland Carr ..... *Midwest (Chicago)*
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Pier designed by Fay, Spofford & Thorndike for the Port of Boston Commission

Raymond COMPLETES NEW SHIP TERMINAL 4 MONTHS AHEAD OF SCHEDULE

THE PORT OF BOSTON gained 4 months unexpected revenue when Raymond completed the East Boston Pier No. 1 in December instead of the following March, as originally scheduled. Among the outstanding features of this project is the approximately 200,000 square feet of unobstructed warehouse space . . . and the latest facilities for transferring cargo directly from ship to train or truck. This mammoth terminal graphically illustrates how Raymond's specialized experience in the complete construction of marine and waterfront structures produces results--in a hurry. Write today for information on how Raymond can serve you.

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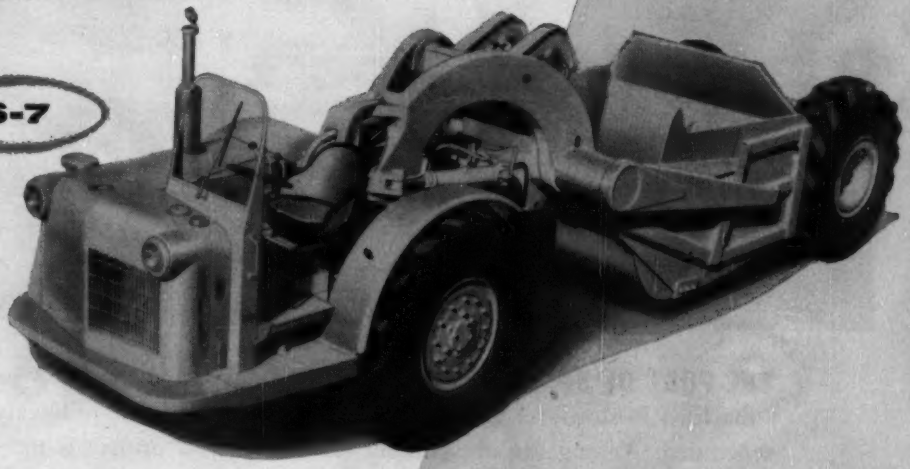
S-7



The S-7 has better than 20 h.p. for each yard of payload—a 143 h.p. engine and 7 cu. yds. struck capacity. It's primarily designed for small yardage jobs and for work in close quarters where maneuverability is essential—non-stop turning radius is 28 ft.—tires are 18.00 x 25 with 21.00 x 25 optional for work in sand or other tough job conditions.

S-12

For medium size jobs or as a utility machine on large projects, this S-12 is the answer. Payload capacity is 12 yds. struck and 16 yds. at 1:1 slope. Powered by a 218 h.p. engine, this model has a top speed of 28 mph with full payload — makes a non-stop 180° turn in 31 ft. Tires are 26.50 x 25 — width of cut is 9' 6".

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7 to 18 yds. struck payload · 143 to 518 h.p.

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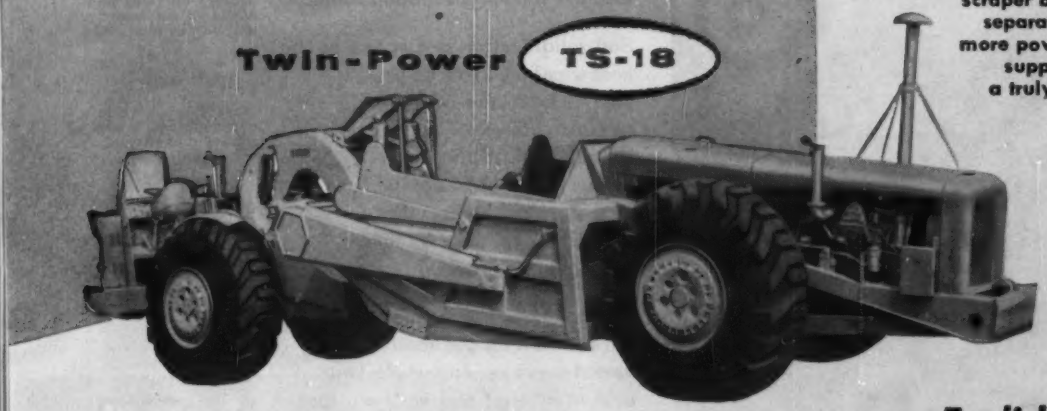
This 15.5 yd. Scraper has built-in performance that gets more work done. It is powered by a 300 h.p. engine with either a 10-speed transmission or Torqmatic Drive—has a heaped capacity of 21 yds. at 1:1 slope, 18 yds. at 3:1. Cutting width is 10 feet. Drive tires are 24.00 x 25 standard with 29.50 x 25 available as optional equipment. The extra speed and stability of this "Euc" really pays off on long hauls.

With Torqmatic Drive and 300 h.p. engine, the S-18 hauls heaped loads up to 24 yds. at fast travel speeds—struck capacity is 18 yds. Standard tires are 27.00 x 33 with 33.50 x 33 optional for maximum traction and flotation on tough jobs. In spite of its size and capacity, the S-18 makes a non-stop 180° turn in only 36 ft.

Twin-Power TS-18



The TS-18 is the most recent development in the Twin Power principle pioneered by Euclid. It is powered by two 218 h.p. engines—one in the tractor and one behind the scraper bowl. Both engines drive through separate Torqmatic Drives. Where even more power is required the tractor can be supplied with a 300 h.p. engine. It is a truly self-loading machine due to its tremendous power and traction—works on grades and under conditions that stymie other scrapers and is a one-man earthmoving outfit. Standard tires are 27.00 x 33—with 33.50 x 33 available as optional.

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The process is called *soil solidification*. Chemicals injected into sub-surface water-bearing soils—even quicksand—convert them instantly and permanently into a solid mass having the load-bearing value of native sandstone.

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Soil solidification is just one of the geological engineering services offered by Manu-Mine to contractors and engineers in industry, utilities, and government. Manu-Mine has demonstrated its ingenuity in tough jobs in many fields throughout the world.

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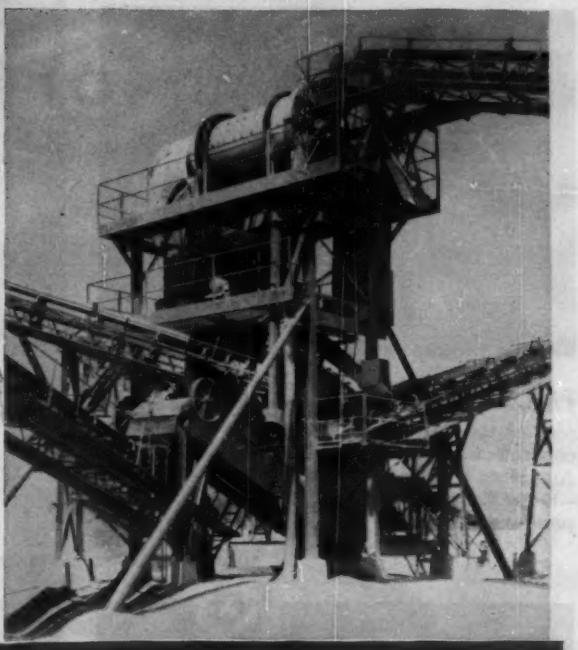
New Plant of L. Romano Construction Co., East Providence, Rhode Island, processes 200 tons per hour of washed aggregate—sand, and 3 sizes of gravel all under 1½" and stockpiled. Telsmith designed the plant, and built the machinery. Send for Telsmith Complete Plant Service Bulletin 278.



Crushing Plant (*above*)—Plus 4" gravel goes to a 18" x 32" Telsmith Jaw; plus 1½" gravel to a 36-S Gyrasphere Crusher; the scalper is a 4' x 12' Telsmith 2-deck Vibro-King. **Washing Plant** (*right*) has a 72" Telsmith Super-Scrubber; two 4' x 12' Telsmith 2-deck Vibro-King rinsing-sizing screens; 24" x 20' Telsmith Twin Screw Sand Classifier.

Many Features of Modern Design—In this plant both Telsmith Crushers are high capacity, low maintenance machines. The large-capacity Telsmith sizing screens have spray bars on every deck. The extra heavy-duty Telsmith Super-Scrubber takes out the clay as well as soft stone, assuring top quality aggregate always. Send for Telsmith Bulletin 266.

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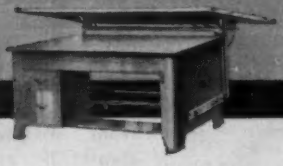

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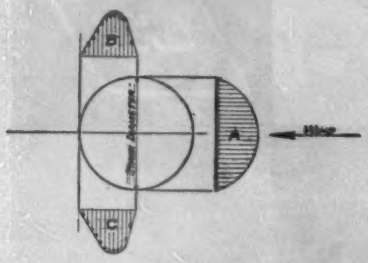

Better Design of Stacks

SIR—From observing the actual behavoir of stacks in high winds, it is evident that our usual methods of design do not adequately provide for all the effects due to the wind.

The usual design theory assumes a direct pressure due to wind on the windward side of the stack. This produces an over-turning moment and causes compression on the leeward side and tension on the windward side. Referring to the diagram this force is represented by area A. In addition to this force there are two forces acting outward on the stack at right angles to the direction of the wind. In the diagram these forces are represented by areas B and C. As soon as the wind passes the diameter of the stack at right angles to the direction of the wind, it produces a vacuum effect which tends to distort the stack elliptically.

If the area B and C in the diagram are exactly equal, the forces are in equilibrium. But this is a state of unstable equilibrium and any unbalance will cause the wind on the leeward side to deflect in the direction of the larger force, and as soon as this force is relieved a larger outward force will form on the opposite side and the wind will deflect back again. This results in a pulsating force acting at right angles to the wind and shifting from side to side.

This effect can perhaps best be illustrated by referring to the action of the wind on a flag supported on a flagpole. If the forces on each side of the flag were exactly equal the flag would stand out in a straight line from the flagpole, but the fact that a flag always waves shows that these forces are not equal but induce a pulsating effect.

One of the seemingly strange effects of wind on stacks is that they sometimes sway back and forth at right angles to the wind. This can be explained by the effect of the forces B and C shifting from side to side as the wind on the leeward side of the stack shifts back and forth.

Another of the phenomena noted by observers is that steel stacks are distorted into an elliptical or oval shape in a high wind. This shows that in steel stacks where the ratio of plate thickness to diameter is small, serious stresses may be induced which the ordinary design methods do not take into account. A stack must be sufficiently rigid to maintain approximately its circular shape and not exceed the safe working stresses of the material. If the shell itself is not rigid enough to do this, horizontal stiffeners should be added at intervals so as to add the required rigidity at safe working stresses.

The fact that a stack becomes elliptical in a wind can cause dangerously high stresses on the leeward side. In designing steel stacks it is assumed that the circular shape will give sufficient rigidity so that the plate will not fail in buckling due to the thinness of the section. When a circular stack is distorted to an ellipse, flattening on the leeward side, the cylinder loses the stiffening effect of the circular cross section and approaches a flat plate with low buckling resistance. This can explain why some stacks have failed near the top where apparently the stresses were low: The relatively thin plate of the distorted stack had a low buckling resistance.

It has been observed that riveted stacks are more rigid than welded stacks. Taking into account the additional stiffness as a circle of the riveted stack at the lap joint, it is easy to understand why it is more resistant to the forces acting at right angles to the wind.

The unpredictable behavior of steel stacks has caused many designers to play safe by using low steel stressed, 10,000 to 12,000 psi, and high wind pressures. While in most cases this has avoided serious difficulties it still does not take into account forces which have a decided influence on the behavior of a stack. In large diameter stacks which have low rigidity as a circle, the forces acting at right angles to the wind can cause serious overstress. While I have not attempted to assign a definite value to these forces, experiments have shown that they are substantial and should not be neglected.

W. L. ZESIGER
Structural Engineer
Cleveland Electric Illuminating Co.
Cleveland, Ohio

Engineering News Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Socialism on Local Level

SIR—Your fine article on the operations of the Minneapolis Street Department (ENR Oct. 13, p. 36) was both technically interesting and socially disturbing. From the technical standpoint I was particularly interested in your account of their use of a self-propelled, rubber-tire roller on asphalt re-surfacing. From a social standpoint, I was especially disturbed to read of the extensive competition which the City of Minneapolis offers to paving contractors in that area. This practice is entirely too prevalent over the entire country.

When men argue on high principle they are generally more concerned with self interest. Over the past number of years American businessmen have raised a great clamor against "creeping socialism" which is defined as the competition of the government with private business. Most of this fuss is raised against the activities of the federal government, primarily in the field of electric power. The activities of the state and local governments are given little or no attention.

The most extensive examples of "creeping socialism" are to be found at the level of the state and local governments. The activities of the federal government are limited to fields which would otherwise be reserved only to the larger corporations. The states, on the other hand, compete directly with individuals, usually on a most unfair basis. A number of states, for example, retain for themselves the monopoly on the retailing of alcoholic beverages thus preventing thousands of individuals from engaging in this line of endeavor.

I must confess that my more immediate concern is over the competition of the state and local governments with individual contractors in the construction of streets and roads. This form of "creeping socialism" is not limited to the more "radical" sections, rather it is prevalent over the entire nation. It is so commonly accepted that it appears to escape criticism, yet it is the most flagrant form of com-

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at Orgill Brothers $2,000,000 warehouse

Five hundred and fifty tons of J&L Junior Beam roof purlins have been specified for Orgill Brothers new $2,000,000 wholesale hardware warehouse in Memphis, Tenn. Both architect and contractor agree that Junior Beams enabled them to save money on this 14-acre project and complete the job on schedule.

Architects W. C. Jones and W. C. Jones, Jr., chose Junior Beams because their physical characteristics permitted greater economy in design, allowed more head room, better clearance and thus provided a better stabilized building. In addition Junior Beam's light weight made for fast, easy handling during construction, as well as during hauling to the building site.

Clinton J. Wagner, Vice President of S&W Construction Company, contractors on the job, reported that "we found Junior Beams to be adaptable and economical for this type of construction. Deliveries were satisfactory and well ahead of schedule. This was a great factor in enabling us to complete the project on time."

Additional savings were outlined by B. S. Merrill, structural engineer for the architects. He said, "we had 6500 sprinklers to install and the use of Junior Beams effected considerable savings . . . I would estimate we would have had to put in 10 to 20 percent more heads if we had used some other joist and at $20.00 a head you can see what we saved."

Take a tip from the men who built Orgill Brothers Warehouse, Junior Beams are adaptable, rigid, shrinkproof, fire resistant, vermin-proof, and impervious to termites. Write for more information today. Our new booklet, *J&L Junior Beams*, shows how these modern structurals are being used as floor joists and roof purlins, with loading and spacing tables for various spans.

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LONG ISLAND CITY 1, N. Y.

petition which government offers to business.

I would not presume to argue, as do the electric companies, that these municipal contractors are less efficient than private contractors would be. I do believe that this is true, not because municipal employees are less efficient, but primarily, because they are not subjected to the intense competition which breeds efficiency. Certainly they are no more efficient, on the average, than are the operators of the TVA.

The operations of the federal government in the field of electric power are partly defended on the plea that this field of business is not subjected to control by competition. That plea cannot be offered against paving contractors for few fields are more competitive. In this field it is the governments which are in the unique position of being able to establish something of a monopoly since they control so much of the business.

Nor will I accept the argument that these state and municipal governments are serving only themselves. If this argument is sound, the federal government should cancel all material contracts and produce its requirements in its own plants. Certainly the federal government can operate an aircraft factory as efficiently as a municipality can operate an asphalt plant.

The primary argument against "creeping socialism" is that government should not, as a matter of policy, conduct any operations which will bring it into competition with individuals engaged in free private enterprise. On this argument the state and municipal governments are far more "socialistic" than was the federal government at the height of the New Deal.

To date I have yet to see any serious clamor raised against them. The answer is all too plain. The rather limited operations of the federal government have been in competition with great corporate enterprises who have the funds and the forces to raise a great fuss. The more extensive activities of the state and municipal governments have been projected against individuals who have not.

PATRICK J. SHEEHY
Civil Engineer
Norristown, Pa.

Credit to Designers

SIR—We enjoyed your article on the lightweight precast and prestressed Kenai River Bridge in Alaska (ENR Nov. 10, 1955, p. 43). However, we feel there was a rather glaring omission in not mentioning the part we played in the design.

We have been active in design of lightweight prestressed concrete for over four years, and when we were approached by C.M.R. Constructors and Empire Building Material Co. regarding the feasibility of stateside casting of girders, we were pleased to assist in preparing estimates. Then after C.M.R. accepted Empire's bid for the prestressed girders we were pleased to prepare the alternate girder design in lightweight concrete for submission to the Bureau of Public Roads for approval. Following acceptance of our design—with minor increase in prestress allowance—we were retained by Empire to prepare working detail drawings for the girders, as well as for the slabs, which C.M.R. later decided to have cast here also.

In addition to our design and drawings (and checking of stressing schedule prepared by Freyssinet), we supervised the yard work for the prestressing contractor, the load, testing, and then the loading on shipboard for C.M.R. Constructors.

ARTHUR M. JAMES
James & Honey
Consulting Engineers
Portland, Oregon

CALENDAR

Nuclear Engineering and Science Congress, sponsored by the Engineers Joint Council, Public Auditorium, Cleveland, O., Dec. 12-16.

American Road Builders' Association, annual convention, Miami Beach Auditorium, Miami Beach, Fla., Jan. 11-14.

Highway Research Board, annual meeting, Sheraton-Park Hotel, Washington, D. C., Jan. 17-20.

American Society of Heating and Air-Conditioning Engineers, annual meeting, Sheraton-Gibson Hotel, Cincinnati, O., Jan. 23-25.

National Association of Home Builders, annual convention-exposition, Conrad Hilton and Sherman Hotels, and the Coliseum, Chicago, Ill., Jan. 22-26.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan. 29-Feb. 2.

Society of American Military Engineers, annual technical meeting, Palmer House, Chicago, Ill., Feb. 9-10.

Association of Asphalt Paving Technologists, annual meeting, Hotel Cleveland, Cleveland, O., Feb. 13-15.

Associated General Contractors of America, national convention, Waldorf-Astoria Hotel, New York, N. Y., Feb. 13-16.

American Concrete Pipe Association, annual convention, Broadmoor Hotel, Colorado Springs, Colo., March 6-10.

American Congress on Surveying and Mapping, and American Society of Photogrammetry, convention, Shoreham Hotel, Washington, D. C., March 18-24.

Conference on Urban Design, Robinson Hall and Hunt Hall, Harvard University, Cambridge, Mass., April 9-10.

75 YEARS OF BUCYRUS-ERIE LEADERSHIP . . .

December 18 marks Bucyrus-Erie's 75th Anniversary. In the years since 1880, the company has been proud to bring many significant advancements to the design of excavators . . . the first electric excavator . . . the first crawler-mounted dragline . . . the first diesel shovel . . . and too many more "firsts" to detail here. Most important, however, the know-how back of these is yours in whatever Bucyrus-Erie machine you use.

President Theodore Roosevelt Visits Panama Canal: This Bucyrus-Erie shovel, one of 77 used on the Big Ditch, was included in his 1908 inspection tour.

The 1½-yd. 38-B has a world-wide reputation for outstanding performance. Bucyrus-Erie offers general purpose excavators ranging from ⅜ yds. up.

. . . GIVES YOU TOP PERFORMANCE TODAY . . .

You can expect top performance from a Bucyrus-Erie excavator because it's *built right in.* It starts with Individual Design — which means that each model in the line is designed from the ground up to handle the rated load. There is no over-powering or over-dippering to create "new" models. Parts are properly proportioned, operating functions are effectively balanced. This results in fast work cycles and big payloads, with maximum time on the job and long service life. The extras Bucyrus-Erie puts into the design and construction of excavators pay off many times over in added output and lower cost operation.

. . . PROMISES EVEN BETTER EXCAVATORS TOMORROW

You can expect even higher performance standards from Bucyrus-Erie excavators in years to come. The development of new and improved designs, and the search for better materials and more efficient manufacturing methods never ends. With facilities unsurpassed in the industry, Bucyrus-Erie promises you excavators that will serve you better than ever.

20Y55C

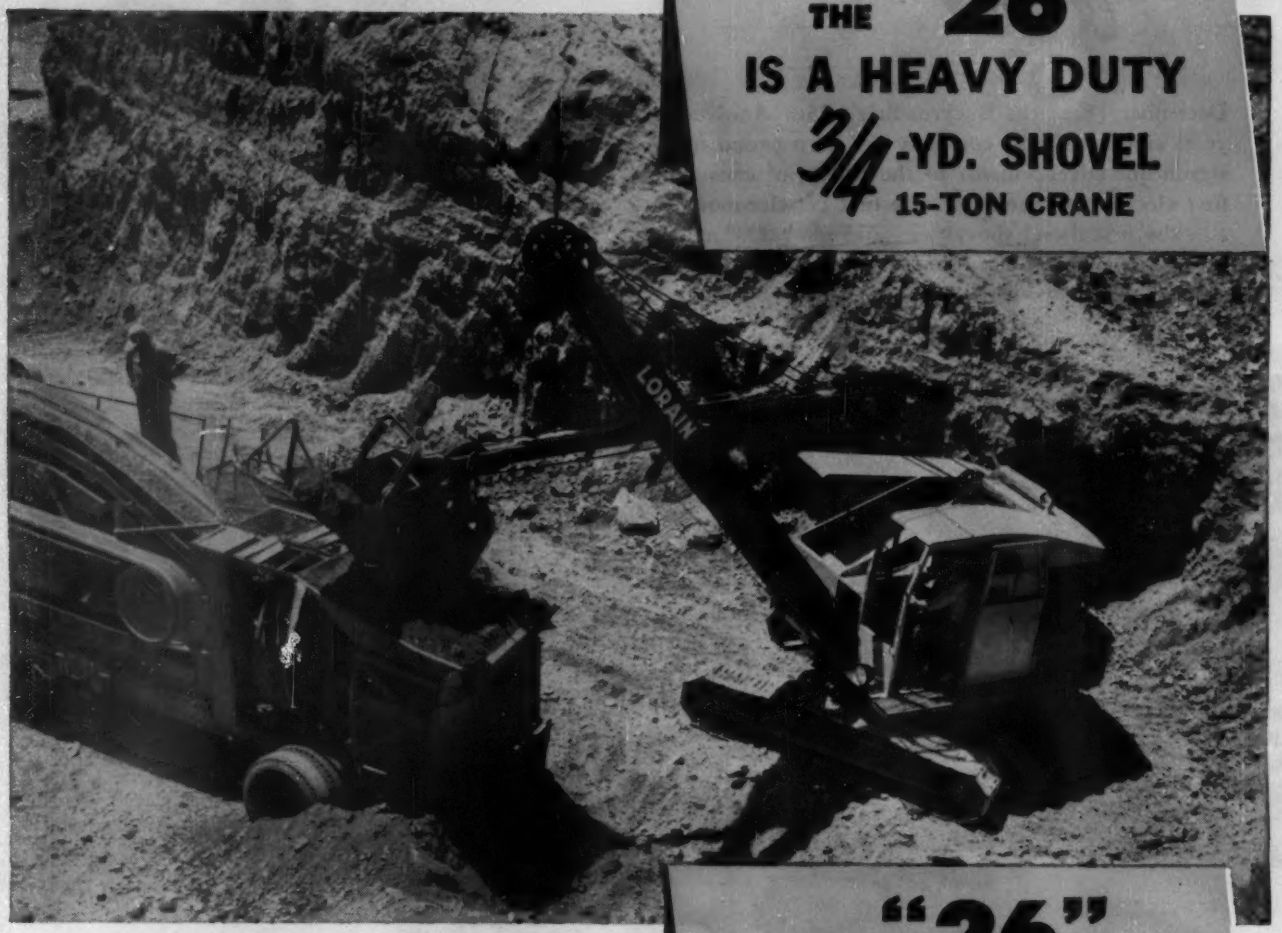
1880 BUCYRUS ERIE *1955*

South Milwaukee, Wis.

75 Years of Service to Men Who Shape the Earth

LORAIN SAYS...

THE "26" IS A HEAVY DUTY 3/4-YD. SHOVEL 15-TON CRANE



THE "26" "CONSTANTLY STANDS TERRIFIC DIGGING STRAIN"

THIS LORAIN OWNER SAYS...

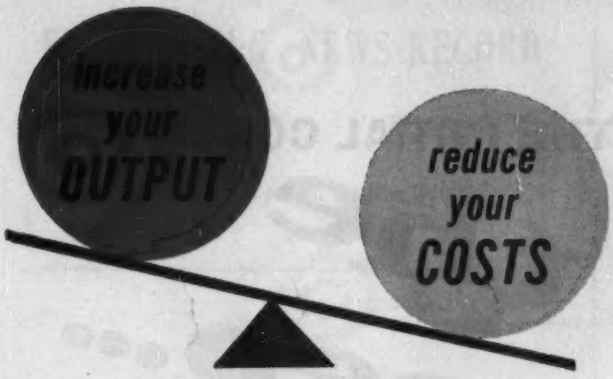
AND HERE'S WHY—this combination of features found in no other machine!

- *New Lorain "E-Z" Controls • "Big Look"—larger, wider cab for greater operator comfort • "Hydra-Ease" power control of crawler steering, tread lock, house lock and shifting of swing-travel jaw clutches.*
- *Hydraulic Coupling power take-off for no-stall, no-shock, "never-say-die" smooth application of power • No digging shocks transferred to mechanism.*
- *5 identical, Interchangeable Shoe Clutches • Bigger clutches with 18% more capacity, plus new, easier action, longer-life design • 19 anti-friction bearings on power shafts and clutch drums.*
- *19 ft. shovel boom for maximum reaches—powerful, independent cable crowd • Much greater weight—over 47,000 lbs. as a shovel • 15-ton crane capacity with 2-piece pin-connected boom • Power load lowering standard • Ability to back-down the load • Third Drum available.*
- *Newly-designed, sturdier, wider, 2-speed Crawlers with 29-inch wide drop-forged treads • 2 crawler speeds in both directions • Oil-enclosed crawler travel mechanism • 4-way, positive Tread & Travel Lock—fully enclosed.*
- *Truss-type Turntable Bed • Hook Rollers—front 2 are on anti-friction bearings.*

The best test for any shovel is on the job. That's where product claims must be proved . . . and that's why Partner and Manager C. R. Davis of the Albany Gravel Co., Albany, Mo., says far more in these words than any claims Lorain may make . . . *"Our Lorain-26 is used for digging natural gravel from a solid deposit. It stands terrific digging strain constantly and takes hard digging abuse exceptionally well."* This is just one owner's reaction to the new Lorain-26. See your Thew-Lorain Distributor. He can show you Lorain-26's at work.

THE THEW SHOVEL CO., LORAIN, OHIO

THEW LORAIN®



power with CHRYSLER INDUSTRIAL V-8 ENGINES

Output's up, cost's down when your equipment is Chrysler-powered. First, because you've a *truly industrial* engine, an engine designed, built and equipped for heavy-duty operation. A check of the heavy-duty quality features listed here will give you an idea of the kind of performance you may expect from a Chrysler Industrial V-8 Engine.

Second, you've an industrial engine with *oversquare* design—its bore diameter exceeds its stroke—giving you all the advantages of resulting short-stroke performance. Pistons and all moving parts operate at unbelievably slow speeds, thereby greatly reducing friction. (For example, at 2000 engine r.p.m. Ind. 56 Engine pistons travel approximately 1200 feet per minute.) This, in turn, means greater power from the same amount of fuel, cooler engine operation, longer engine life.

Third, you've a deep-breathing engine, thanks to a unique "opened-up" design manifold. This means high volumetric efficiency, greater fuel economy. With Chrysler Industrial V-8 Engines you can select and equip your engines to use whatever fuel best meets your requirements—gasoline, natural gas or L-P-G fuels.

Yet despite all their advantages, Chrysler Industrial V-8 Engines cost less to buy, to install, to operate. They will do fully as much or more than ponderous slow-speed, long-stroke engines. If your equipment is not Chrysler-powered and you can use power within the 270 to 331 cubic inch displacement range, contact the nearby Chrysler Industrial Engine Dealer. Ask him about Chrysler Industrial In-Line 6 Engines too. Or, if you prefer, write: ***Dept. 912, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***

Here, for example, are some of the heavy-duty quality features and materials you find in Chrysler Industrial V-8 Engines:

CRANKSHAFT—heavy-duty, forged steel, flame or induction hardened. Chrysler-exclusive undercut fillets for added strength. Fillets are shot-peened to counteract surface stresses and fatigue failures.

CRANKSHAFT BEARINGS—heavy-duty, tri-metal with Chrysler-exclusive cast copper-lead intermediate layer with nickel alloy dam to prevent possible corrosion caused by acids in oil.

Combination of Hardened Crankshaft and Heavy-Duty Crankshaft Bearings—offer greater resistance to the abrasive effects of dirt.

VALVE SPRINGS—twin concentric stainless steel. Extra strong dual springs operate as a unit, but either will operate valve alone should necessity arise.

VALVE TAPPETS—hydraulic, adjusting automatically to compensate for expansion, contraction and valve wear. Undercut to prevent sticking due to varnish or sludge deposits.

ENGINE COOLING—maximum allowable cooling water temperature rise between inlet and outlet is approximately 15°. Hottest spot in engine is only 20° hotter than the coolest . . . thereby reducing cylinder block distortion.

TIMING CHAIN—heavy-duty, wider than average for longer life.

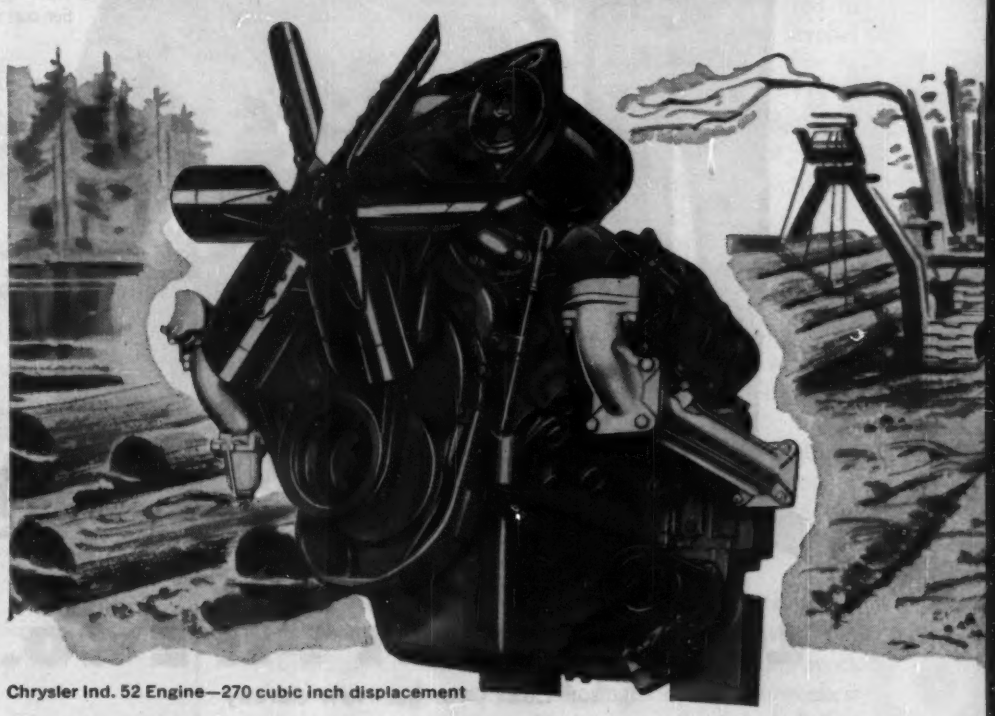
PISTONS—aluminum alloy with thermostruts to control piston expansion.

EXHAUST VALVE ROTATION—positive, automatically spreads wear around the entire valve and valve seats. Valves make from ten to fifteen complete revolutions per minute at the speed of most equipment.

EXHAUST VALVES—extra hard stellite valve faces and valve seat inserts. Stellite seat inserts retain hardness in the presence of gases as hot as 1500°F.

SPARK PLUGS—resistor-type for long life. Spark plugs and wiring are covered for absolute protection against dirt and moisture.

DISTRIBUTOR—dirt and moisture proof with sealed cap.



Chrysler Ind. 52 Engine—270 cubic inch displacement

HORSEPOWER WITH A PEDIGREE

CHRYSLER INDUSTRIAL ENGINES

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

IT'S NOT THE INITIAL COST

it's the upkeep...

Competitive bidding on water works projects has brought the price of comparable pipes of different specified materials to a nearly common level. Today, the important consideration for the buyer is not so much the first cost as the maintenance charges which continue throughout the life of the pipeline.

In any such comparison, the superiority of LOCK JOINT CONCRETE PRESSURE PIPE is demonstrated by the experience of hundreds of municipalities. One of the country's largest industrial cities, for example, reports that during 1954 NOT ONE CENT was spent for maintenance or repair of the more than 14,000,000 inch feet of Lock Joint Concrete Pressure Pipe in its water works system.

Your city, too, can virtually eliminate maintenance expense, and save many times the initial installation cost with Lock Joint Concrete Pressure Pipe.

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ENGINEERING NEWS-RECORD

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CONTENTS

NATIONAL AFFAIRS

Should Schools Get Federal Aid 21
$51 Million Set to Stop Northeast Floods 22
Highways, Housing, and Hurricanes 23
High-head Hydro System Proves Efficient 24
Air Force Engineers Are in the Army...Again 25
More Power and Water for West Coast State 26
Carquinez Bridge and Kansas Turnpike 27
Cutting Costs– GSA Shows the Way 28
Ferry Plan Runs into Financial Snag 32

FEATURES

Unique C-Frame Buttresses Relive That Hangar Look 34
Concrete Skyscraper Designed for Hurricanes 38
Weber Basin Water Project Ready in 1957 45
First All-Welded Railroad Bridge Appears in This State 51
Maximum Security for Munitions Handling Developed 54

NEW PRODUCTS

Pioneer's Paver Lays Asphalt Fast 59
New Tire Changing Tool Adapted to Tubeless Rims. 60
Vibrating Rollers Pack a Wallop 62
Scaffolds on Wheels Speed High Work 64
Publications 68

INTERNATIONAL

Work on Bhakra Dam Forges Ahead 73
Sweden Plans Construction of Two Atomic Power Plants 74
Ecuador Railroad Opens Back Country 76
Dominion Roofing Companies Accused of Price Fixing 78

MEN AND JOBS

Two Deputy Engineers Appointed to Highway Posts. 91
Construction Chief Returns from Assignment in Alaska 92
Skidmore Owings & Merrill Name New General Partners 94
A. L. Grover Leaves State Highway Post 94

BUSINESS AND FINANCE

Private Work Keeps the Boom Rolling Along 149
Construction Costs Level After Earlier Rise 150
Investor Group Buys into Thompson-Starrett Co 150
Activity This Week 152

LABOR

Labor Tackles the Job of Unity 155-160

Reader Comment 10
Calendar 12
Washington Observer .. 19
Legal 81
Material Prices 101
Scoreboard 144
Editorials 172

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Price 35¢ each copy except Annual Cost Issue. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

SCHOOL CONSTRUCTION GETS BOOST—The U. S. classroom shortage got a going-over last week at the White House Conference on Education (page 21). There was a large measure of agreement that most states could do more to meet school needs. But the 1,800 delegates from all parts of the country also were 2 to 1 in favor of federal aid for school construction. Administration spokesmen, too, indicated that a program for increased federal aid will be offered to Congress.

A PLUG FOR TRANSIT—Poor transit systems were indicted as at least partly responsible for the modern city's many ills. The American Municipal Association's Miami convention (page 23) heard D. C. Hyde of the Cleveland Transit System declare that offstreet parking and other conveniences for the private car can only add to downtown congestion and subsequent loss of business. His solution: Aid transit; soft pedal garage and expressway plans.

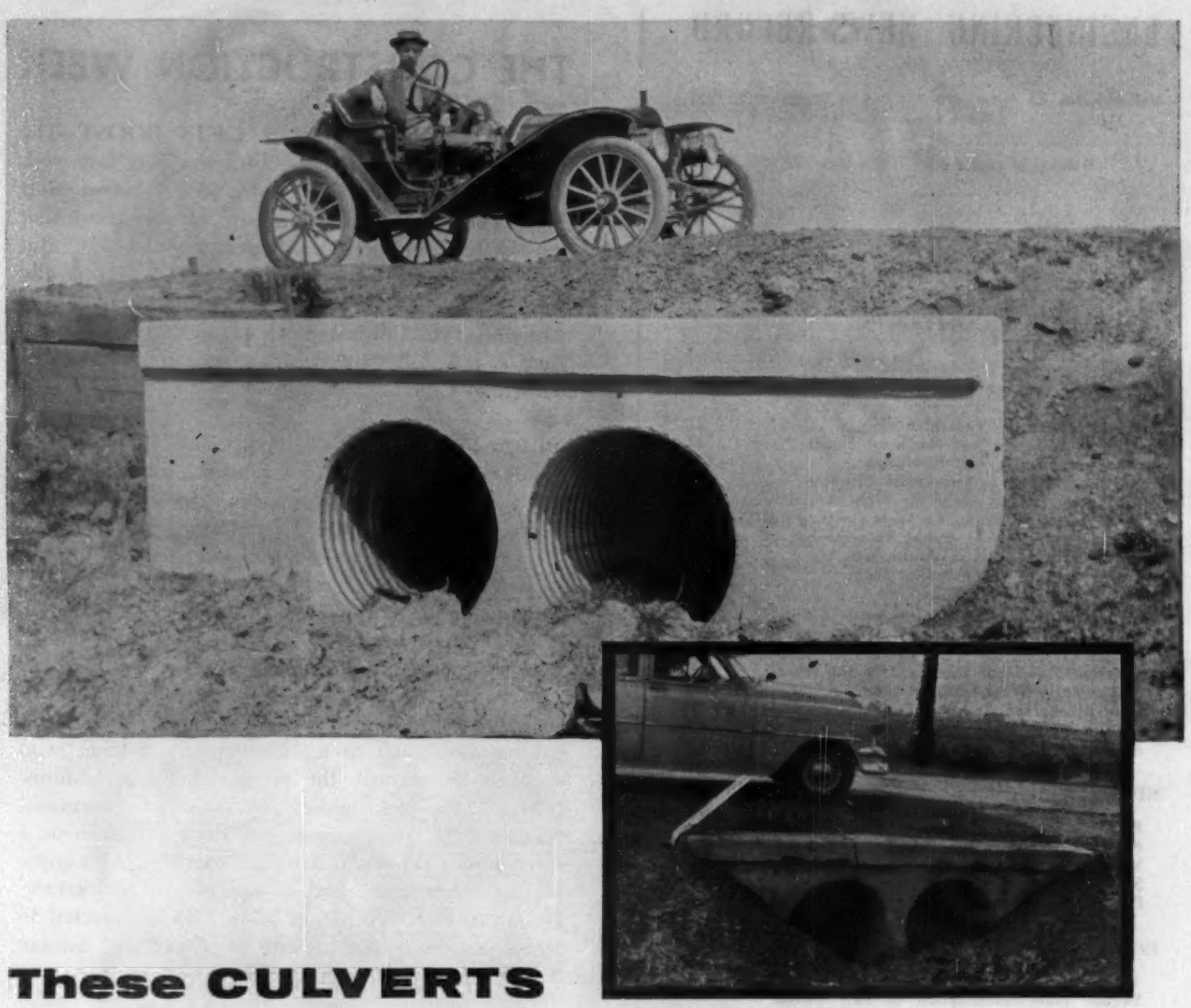
GSA BUILDING STANDARDS—While awaiting a new commissioner to replace Peter A. Strobel, who resigned last month, the General Services Administration's Public Building Services has borrowed Raymond H. Weins from the Budget Bureau as a consultant. (Weins is a retired executive of Equitable Life, where he had charge of real properties.) Despite the change in top brass, PBS is expected to retain the new design criteria issued by Strobel before he stepped out (page 28).

IN THE FAMILY—Merger doubts previously voiced by some of the building trades were officially kept in the background during last week's merger conventions (page 155).

Result was a recommendation by the Building Trades Department that a permanent committee be formed to solve its differences with the new Industrial Organizations Department. It was suggested that in the meantime efforts be made to organize maintenance workers in industrial plants at the time of construction.

Other steps toward unity, taken by the building trades in their own convention, included extension of the jurisdictional disputes plan to all affiliates in the department.

LABOR SUPPLY HOLDS UP—Although employment in contract construction keeps going up with the building boom, a spot check of key cities this week indicated only scattered shortages of skilled workers in a few trades. And, it was generally expected that manpower would not be among any shortages that might be encountered next spring.



These CULVERTS

Have Seen a Lot of Changes Since 1910

The two photographs of this twin installation of Armco Corrugated Metal Pipe represent 45 years of drainage service. The 36-inch structures were installed near Stockton, California, in 1910. Today, their good condition promises many more years of trouble-free performance.

During these 45 years many changes have been made in highway travel and construction. And drainage structures, too, have had improvements.

In the 1920's Armco introduced PAVED-INVERT Pipe for erosive drainage service. A bituminous pavement provides protection at the point of maximum wear. Another development was bituminous-coated pipe—for corrosion-resistance. In 1936, ASBESTOS-BONDED was introduced to meet the need for structures in *severe* corrosive service. Other Armco developments have been Pipe-Arch for low headroom applications, and MULTI-PLATE structures (field-assembled from curved, corrugated plates) that provide the advantages of corrugated metal design in large, heavy gage Pipe and Pipe-Arch.

Today, you can bring your drainage problems to Armco with every assurance of getting the right structure to meet your specific needs. Write us for complete information. Armco Drainage & Metal Products, Inc., 4905 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO DRAINAGE STRUCTURES

ARMCO

WASHINGTON OBSERVER

Democratic leader Sam Rayburn will continue his fight for a big highway bill. Rayburn, who played a key role in getting the Fallon bill onto the floor of the House, still wants long-range legislation based on increased taxes to pay the way. The Fallon bill, calling for about $25 billion over 12 years, got beaten badly when it came up for a vote last summer.

If a long-range bill can't be passed, for whatever reasons, Rayburn undoubtedly will back a measure stepping up present federal aid to, say, $1 billion. That would be up from this year's $875 million.

The experts all agree there would be no increase in taxes to go with a bill calling for such a relatively small spending increase.

•

The Home Loan Bank Board will be advancing credit to member banks as a result of the long fight over the tightness of housing credit and its impact on housing starts.

The HLBB ban on new bank credit to building and loan associations made last September has been the center around which the fight boiled. Homebuilders and particularly the savings and loan associations have been vigorously denouncing the rule from the day it was announced.

There's hope that the relaxation may come soon enough to offset the depressing effect it allegedly has had on housing starts. This year the theory is that lack of funds would prevent builders from making plans for new sub-divisions next spring. Now, there's a feeling that the losses if any, could be made up once it's known that new credit can be had.

•

Shortages of materials are having an impact on estimates of future highway building. Studies made about a year ago by the American Road Builders Association for the President's highway committee, headed by General Clay, indicated that materials, equipment, and manpower would be adequate to take on the huge additional load of construction called for.

Now the ARBA is taking another look. It is going to assess the new supply and demand situation in view of the outlook for all kinds of construction—which is for sizeable increases year after year as far ahead as anyone can see. The Road Builders feel that they can no longer take it for granted that the materials—steel, cement, asphalt, aggregates, and the like—will automatically be available in the quantities needed.

•

Early passage of the Upper Colorado water storage project is pretty much assured—now that the Administration has withdrawn its support for Echo Park Dam. The Senate has already voted legislation, including Echo Park, and the House Interior Committee has approved a bill without the controversial proposal. Easy agreement is predicted.

The Administration last week bowed to conservationist groups on the Echo Park dispute. But Secretary of Interior Douglas McKay's decision to drop it put new impetus behind the drive to get final approval of Glen Canyon Dam, near the Utah-Arizona line, Flaming Gorge on the Utah-Wyoming-Colorado boundary, and Navajo Dam in New Mexico. These three dams will cost about $500 million. Other irrigation and storage projects would account for the remainder.

•

Watch for renewed hullabaloo over civil defense when the Conference of Mayors, and the American Municipal Association meet at a White House-sponsored conference next February.

Pulling and hauling over what to do about hydrogen warfare has all but demolished plans for domestic survival.

How Link-Belt Speeder engineering helps both the shovel-crane and the operator

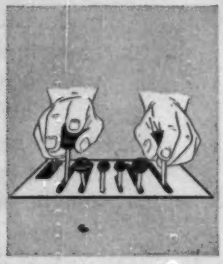
increase earning capacity!

LS-98 with 60' boom and 1¼ yard bucket works in sand and gravel pit.

You're ahead on every job —Link-Belt Speeders—whether crawler or rubber-tired—are years ahead of the shovel-crane industry. Only Link-Belt Speeder offers you Speed-o-Matic—the true power hydraulic fingertip control system. Only Link-Belt Speeder offers you so many outstanding design, construction and operator advantages. For facts on every machine in the ½ to 3-yd, 10 to 60-ton work range—contact your Link-Belt Speeder distributor or write Link-Belt Speeder Corporation, Cedar Rapids, Iowa.

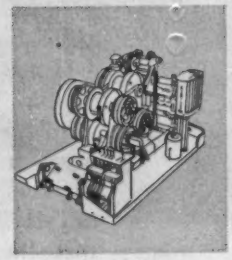
13.9B

Two-way speed increase



● Speed-o-Matic, the true power hydraulic control, provides fast, easy, smooth response . . . ideal control *for speed with accuracy*. It's also engineered to *reduce operator fatigue* — enables him to maintain greater output with less effort.

Extra power, stamina



● Anti-friction bearings, splined shafts and precision-machined surfaces at every important point convert more *rated* hp into actual line pull. All-welded, stress-relieved construction permits use of extra power.

More work-time

● Speed-o-Matic reduces operator fatigue, losses due to end-of-the-shift letdown. Further, it minimizes downtime. For example, Speed-o-Matic clutch is hydraulic actuated, self-compensating. Eliminates frequent stops for adjustment.

A demonstration can be arranged to suit your convenience. See one of these great machines in action and judge for yourself why they are today's most advanced shovel-cranes.

LINK-BELT SPEEDER

Builders of a complete line of crawler and rubber-tired shovel-cranes

White House conferees say "Yes" to . . .

Should Schools Get Federal Aid?

The construction industry had a big stake in last week's White House Conference on Education which mobilized grass-roots support for an accelerated school building program. Use of federal aid for school construction—promised by the Administration—was favored by two out of every three delegates among the 1,800 participating.

The educators and laymen at the conference agreed that no state in the U. S. has yet proved that it is financially incapable of building the schools it will need during the next five years. But, in the words of the report:

"With the exception of a few states, none of the states presently has plans which indicate a political determination powerful enough to overcome all of the obstacles."

• **Federal aid**—The controversial subject of federal aid to schools, which was expected to split the conference, did not prove that explosive. There were no pitched battles on the issue, because the conference was organized into 166 discussion tables, with no formal debating or voting by all of the participants as a single group.

• **Administration approves**—Another reason there was no battle on federal aid: The Administration made plain at the conference it would recommend increased aid to schools.

An administration proposal early this year, to which Congress paid little attention, emphasized loans rather than grants.

The new Secretary of Health, Education & Welfare, Marion Folsom, offered these principles for federal aid to school construction:

- It would be set up in a manner that would not reduce the incentive for state and local effort.
- It would go to all states, but would be distributed according to need.
- It would not in any way encroach on freedom of local school systems.

• **Segregation**—Only about one in every ten tables recommended that local districts getting federal aid be required to comply with the Supreme Court's ruling against racial segregation in public schools. That issue might well block a federal-aid bill, if pressed strongly.

• **Classroom shortage**—The conference received a report from an advance study committee which indicated the classroom shortage is somewhat less acute than when ENR published its special school report earlier this year (May 26).

On the basis of updated reports from states with about 80% of the population, the overall U. S. need will be 374,000 classrooms for the school years of 1955 to the end of the 1959 school year. The U. S. Office of Education last spring indicated there would be a need for 476,000 classrooms by the start of the 1959 school year in September.

About 203,000 classrooms are needed now to house school children properly. To meet this backlog and future needs, school systems have 66,000 classrooms scheduled for completion in this school year. Last year it was 60,000.

Of 41 states reporting, 19 claimed they were losing ground in coping with their school building problems, 10 claimed they were gaining ground, and 12 said they were holding their own.

• **Essential facilities**—After discussing building needs, the conference recommended a distinction between "mandatory" and "desirable" facilities for schools. It felt that these were essential for elementary schools: kindergarten; office; assembly and cafeteria space, or multi-purpose room; physical education and playground; health unit; teachers' room; custodial and storage rooms. Desirable, but not mandatory, were: special service rooms, library, visual-aid room.

For high schools, the conference recommended as basic facilities: science, art, homemaking, music, industrial arts rooms; physical education; library; cafeteria; auditorium; health unit; teachers' room; student locker facilities. Desirable, but not mandatory, were: swimming pool, visual-aid room.

• **Other suggestions**—The delegates were cautious about making any recommendations about lengthening the school year to get more use out of existing buildings. Some said it was worth studying; others said they had tried the plan and found it unsatisfactory. There was no mention in the final report of use of prefabricated buildings. There was a discussion of possible legislation to require tract homebuilders to provide space for schools, but no recommendation was made.

• **Obstacles**—What are the obstacles that block states and local districts from meeting their classroom goals? The conference final report listed these:

- Building codes are frequently obsolete, should be revised at intervals of not more than five years.
- Voters in small school districts fail to cooperate with consolidation programs. (Consolidation of school districts has gone a long way since 1930, when there were more than 125,000. Today there are about 69,000, but there are still some 8,000 which do not have enough pupils to justify a school program.)
- Shortages of materials, labor and engineering service.
- Lack of foresight in long-range planning.
- State laws limit borrowing capacity.
- Local assessment practice is to keep assessments unrealisticallly low, thus further limiting borrowing capacity. This practice is unfair to districts which assess higher, because they get less state aid. The state should equalize assessments.
- Too much dependence on the property tax.

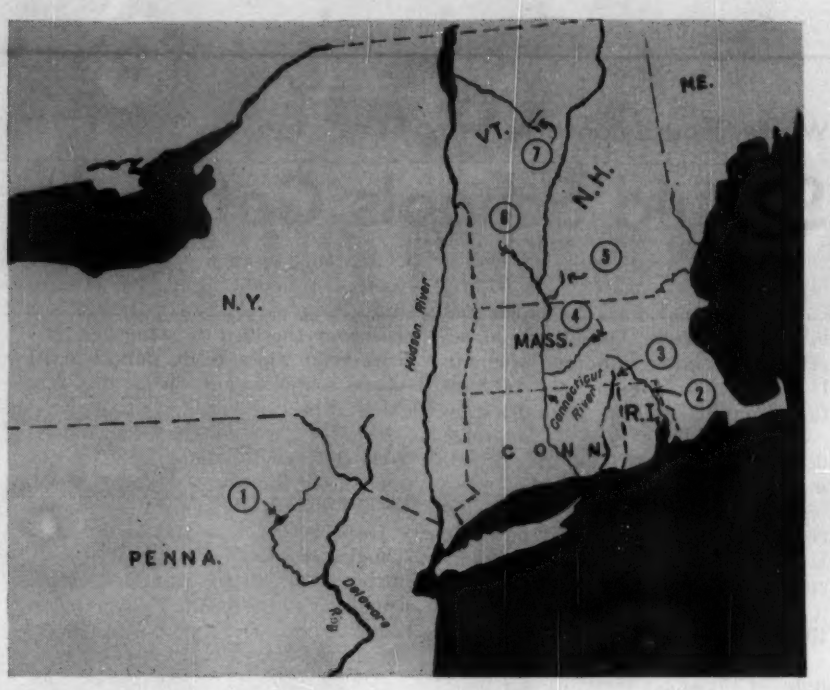
• **Comments**—Some typical comments that were overheard at the table discussions:

A Florida delegate: "The Supreme Court rule on nonsegregation means Southern States are faced with the necessity of doing more construction—and soon. Some of the folks there are going to fight federal aid. But I don't see how they're going to get along without it."

Some delegates mentioned that federal-aid money for highways was drawing away state funds that might otherwise have gone to schools. Said one: "You hate to see that federal matching money being lost, so you put it into highways. If a large-scale federal highway program is adopted that involves increases in state matching funds, our educational program will be squeezed for 10 years."

New Projects Planned:

1. Bear Creek Dam to cost $17.9 million.
2. Buffumville Dam to cost $2.82 million.
3. Woonsocket Channel to cost $2 million.
4. Barre Falls Dam to cost $2.68 million.
5. Otter Brook Dam to cost $4.8 million.
6. Ball Mt. Dam will cost $16.6 million.
7. E. Barre Spillway to cost $3.75 million.



$51 Million Set to Stop Northeast Floods

Flood-control construction in the storm-ravaged Northeast is a sure thing for next year. The Administration is prepared to ask Congress for funds to start seven new flood-control projects—six in New England and one in Pennsylvania.

Names of the seven projects have not been announced officially, and won't be announced until the President submits his budget requests to Congress.

But information on the state of pre-construction plans is almost a sure tip-off to the seven projects; they are the projects that are ready for contract awards once Congress votes the money.

Here they are:

- Bear Creek Dam, a $17.9-million project on the Lehigh River in northeastern Pennsylvania.
- Ball Mountain Dam, estimated to cost $16.6 million, on a wastern tributary of the Connecticut River in Vermont.
- Otter Brook Dam, $4.8 million, on an eastern tributary of the Connecticut River in New Hampshire.
- Barre Falls Dam, $2.68 million, another Connecticut River Basin project, in Massachusetts.
- Buffumville Dam, $2.82 million, in the Thames River Basin, Massachusetts.
- East Barre Dam, a modification of an existing project, consisting principally of spillway enlargement, estimated to cost $3.75 million, on the Winooski River in Vermont.
- Woonsocket, R. I., $2-million local protection project to make a flood channel for the Blackstone River through the city.

These projects, adding to a total estimated cost of $51 million, represent only the first steps in an accelerated construction program that will bring in additional projects as local people change their attitude from opposition to approval.

Public apathy and local resistance in the past have been the main stumbling blocks to federal action on flood-control projects in New England. Congress has authorized 41 dams for that area. Only nine have been built, and none of the others is under construction.

Local attitudes already have changed as a result of this year's storms and the threat of future intense rainfall. Connecticut and Massachusetts already have approved two important projects that the Corps of Engineers had previously deferred because local interest opposed construction. They are the vitally important $16 million Thomaston Reservoir on the Naugatuck River and the $5.7 million East Brimfield Dam on the Quinebaug, a tributary of the Thames. Another project that should soon become active again is the $3.25 million Hodges Village Dam, on the French River.

Changed local opinion has made it possible also to restore another authorized project to active status—the $33 million Hopkinton-Everett Reservoir on the Merrimack River watershed in New Hampshire. Local opposition had caused this project to be replaced by two substitute dams at other locations. But the New England plan now swings back to the original proposal for a pair of rolled earth structures on tributaries of the Merrimack, with a connecting canal to form a unified Hopkinton-Everett Reservoir.

Pre-construction planning of these deferred projects remains to be done. Planning money for them and similar projects that have lain dormant undoubtedly will be sought from Congress next year.

To complete the full program of New England flood-control works so far authorized—41 dams plus 31 local protection projects—would cost an estimated $331 million (ENR Sept. 1, p. 21). Of that total, Congress has appropriated $72 million to build the nine completed dams and 22 local projects.

In addition to that backlog, other new projects will be authorized as a result of studies that the Senate Public Works Committee has instructed the Army Engineers to make. The committee has asked for review of flood-control plans for all rivers in New England to determine what projects should be added.

If Congress votes money as expected to accelerate pre-construction planning of authorized projects, the Corps of Engineers will expedite the work both by awarding further contracts to local architect-engineer firms and by farming out some of the design to district offices in other parts of the country.

Municipal officials talk shop—the subjects . . .

Highways, Housing and "Hurricanes"

The hurricanes hit Miami again, but this time they were not the devastating damsels such as Hazel and Diane. They were figures of speech used by presidential hopeful Adlai E. Stevenson in an address before the 32nd annual congress of the American Municipal Association.

Stevenson's metaphor referred to the problem of our central cities whose population shifts outward from the stagnant core or "eye" to the suburbs while into the vacuum of this "eye" come "the citizens who cannot afford adequate housing at private industry's going rate."

Housing & Home Finance Administrator Albert M. Cole underlined Stevenson's view and stated that any city without a comprehensive plan of action under way in the next few years to renew its urban pattern and get rid of the heavy costs of slums and blight will "face municipal bankruptcy by 1965."

"The reason is elementary," Cole said. "The tax structure will not be able to support the demands imposed upon it. This is especially true of the city whose tax structure has already been weakened by net tax deficits in slums and blight."

• **Area-wide planning**—"Urban renewal can be successfully accomplished on an area-wide basis—and it is being so accomplished right now with conspicuous results in a substantial number of cities large and small.

"Under the Housing Act of 1954, community-wide workable programs have been approved for more than 70 cities and towns, and about 90 other communities have comprehensive programs in some stage of planning. Including pre-1954 projects, some 320 redevelopment operations are now in progress in more than 200 communities."

Mayor R. C. Lee described how his administration put forward a program of redevelopment in New Haven, Conn. He cautioned against doing everything at once, and advised an educational program as part of community redevelopment.

"We opened new playgrounds and told the people this was redevelopment," he said. "Then we built new schools and told them this was redevelopment. By the time we got to slum clearance, our citizens knew and understood what we were driving at."

The New Haven mayor said that as a result of this program, industry and housing are spending $31,000,000 in new construction at a cost of $575,000 to the city.

Mayor W. E. Brown offered his explanation of how an off-street parking program was instituted and made to pay in Ann Arbor, Mich.

"You've got to cram it down their throats, then they'll love it," he said.

The mayor claims that Ann Arbor realized a profit of $145,000 in 1954 on municipal off-street parking facilities, and added that profits are running at a 30% increase this year.

"In addition," he said, "assessed valuation has increased $2,000,000 as a result of new buying power for downtown stores and business houses."

• **Urban transportation**—But if lack of adequate housing is a condition, the lack of adequate urban transportation is both a condition and a cause. The assembly of city officials from all over the U. S. was told by Wilfred Owen of the Brookings Institution that:

"The urban population, to the extent that it does move, is moving in circles. It is shifting from unsatisfactory mass transportation to the equally unsatisfactory alternative of trying to drive on antiquated highways. The loss of customers is adding to the disabilities of transit, while the increase in automobile usage is compounding the frustrations of driving."

That the problems exist and that action must be taken immediately were agreed on by the entire group.

A public relations program as rendered by a traffic engineering department was the recommendation of F. G. Jordan, Jr., highway and traffic engineer for Norfolk, Va.

According to Jordan, "well-painted, well-striped streets, good signals, good signs—all of these things that produce a smooth flow of traffic will attract favorable comment and are signs of a wide-awake city. You may spend $50 million to put in a sewer which you bury underground, but few people ever see it. You may spend $5,000 to paint white lines on all of your streets, and 95% of your citizens will see some portion of them everyday."

• **Sanitary engineering**—But this was not meant to mean that the problems of sanitary engineering can be forgotten. This was pointed up by Mayor N. E. Porter of Palo Alto, Calif., who described the plight of the suburban community in a metropolitan area.

According to Porter, when a city is completely surrounded by other municipalities special districts, or unincorporated urban areas, coordination of services is made complex and awkward. The problems of refuse and sewage disposal are magnified and the solutions become expensive. To insure an adequate water supply, the small city in the metropolitan area may be at a disadvantage unless it is able to join with other cities in financing the production and distribution of water from points possible outside the metropolitan area. In a number of areas metropolitan water districts have been formed.

In Palo Alto, however, the solution has been somewhat different. Although the city has a number of producing wells it cannot satisfy its water requirements; consequently, it must depend on another source. This source is available only because the city of San Francisco has invested millions of dollars in a farsighted water distribution system. Water is sold to Palo Alto and other adjacent cities by San Francisco.

In this instance the central or core city has performed a metropolitan function, which could not be performed by any other single city in the metropolitan area.

• **Public transportation**—However, cooperation is a two-way street and the central city requires help from its suburban communities. Into the city in the mornings and out of it at night pour hundreds of thousands and in some areas, millions of shoppers and workers. It is the opinion of D. C. Hyde of the Cleveland Transit System and E. L. Tennyson, Traction Commissioner for Youngstown, Ohio, that if these transients do not use public transportation, the central city has its transit problems multiplied.

According to Tennyson, "Automobiles cannot be the design criteria in the central city. Transit must be the main artery, with automobiles serving as the capillaries. . . .

"Transit riders are taxpayers, too, and must be included in our public works programs. A highway bill will be before Congress next year, with emphasis on the urban problem. Every congested city should instruct its representatives to make sure that the transit riders are given a fair share of the funds that are to be provided."

Road Deficiencies

Kentucky highway needs would total $2 billion for next two decades

Expenditure of an average of $144 million annually for 20 years is required to maintain the highways of Kentucky and eliminate their deficiencies, according to an engineering report just made to the state's Department of Highways by the Automotive Safety Foundation of Washington, D. C. The state's present highway income from all sources is $118 million. New construction required in the 20-year period will total $2.1 billion.

More than half of Kentucky's roads and streets, including two-thirds of the main traveled highways, were found to be inadequate. By the end of the 20-year period, some improvement will have to be made on most roads in the state.

• **Recommend reorganization**—The report recommended a complete reorganization of the Department of Highways to centralize policy control and decentralize operations and supervision

The establishment of a civil-service system is proposed, together with a retirement plan, as a means for obtaining and retaining competent engineering personnel.

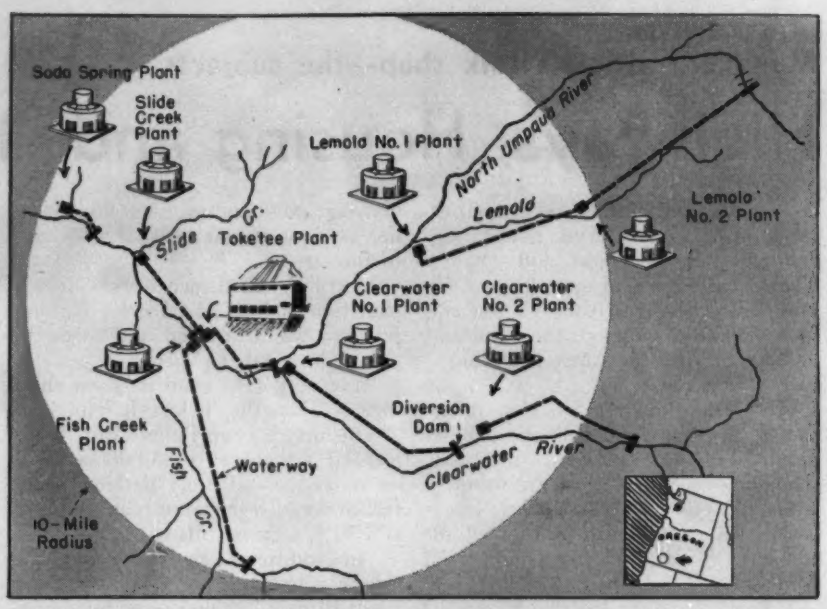
Reclassification of the state's roads and streets is recommended to establish a rural state trunkline system of not more than 5,300 miles, a county arterial system of 14,500 miles, and a county feeder system of 37,000 miles.

Not more than 375 miles of city streets should be included in the trunkline classification and not over 725 additional miles of streets should be classified as part of the arterial system according to the Automotive Safety Foundation report.

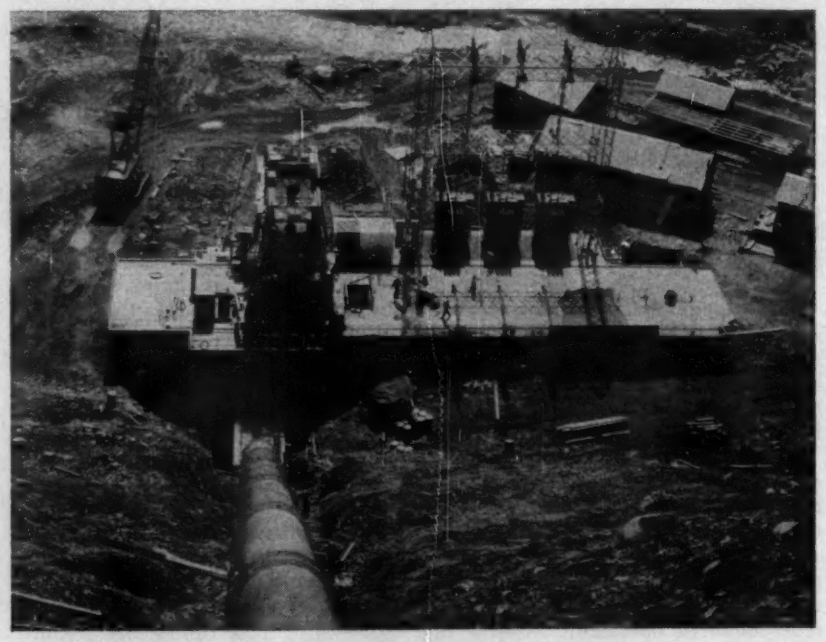
The department's current responsibility for maintenance of roads in the county feeder classification should end, the report states, thus placing both fiscal and administrative responsibility for them on the counties.

• **Urge consolidation**—Counties with inadequate resources would combine to form road districts if the report's recommendations were carried out. Each county or district should employ a qualified road engineer or superintendent, the report states.

A parallel study of how to finance the work covered by this engineering report is being made by the Bureau of Business Research of the University of Kentucky. It is expected to be issued soon.



IN THE CASCADE MOUNTAINS of southwest Oregon, north of Crater Lake, eight small hydroelectric plants cluster within a ten-mile radius as the North Umpqua River project of the California Oregon Power Company.



High-head Hydro System Proves Efficient

Newest link in a hydro system that relies on a high head to make the most of a small volume of water is Lemolo No. 1 (above), completed in July.

The steel penstock feeding water into the 31,000-kw plant has a head of 710 ft. Morrison-Knudsen Co., Boise, Idaho, built the 110-ft high rock-fill storage and diversion dam for Lemolo No. 1, plus three miles of canal and flume to carry water from dam to penstock.

Lemolo No. 2—eighth unit in the system—is to be completed next year. It will bring total installed capacity of the $28-million system to 203,000 kw. The dam for Lemolo No. 2 is concrete slab and buttress type construction. Its dimensions are 25 ft high and 190 ft long at the crest.

Because of the close proximity of the various hydroelectric plants in the system, it was possible for California Oregon Power Company to use central controls for the North Umpqua River project.

Seven of the system's eight plants are to be remotely controlled. The entire system will be run from the supervisory controlled switchboard at the Toketee plant.

Those Air Force Engineers . . .

They're in the Army Now . . . Again

Army Engineers serving with the Air Force are returned to Army control under a Defense Department decision announced last week.

From now on, the Department of the Army through its Corps of Engineers will retain command of construction battalions and personnel assigned to overseas work for the Air Force.

Abolished by the new order is an arrangement (Special Category, Army Units With Air Force) that has satisfied nobody. Set up in 1947 when the Air Force became a separate Department of Defense establishment, SCARWAF transferred Army Engineer troops—trained and organized by the Army Engineers—to the command of the Air Force.

Neither the Air Force nor the Army liked the arrangement. The Air Force wanted the SCARWAF troops, known as Aviation Engineers to become a permanent part of its own forces. The Army held out for return of SCARWAF to the Corps of Engineers. Efforts last year by both services to end the arrangement put the problem up to the Defense Department.

Last week's solution is based on Congressional intent, spelled out in the National Security Act of 1947—that common services of the military be supplied on a unified basis wherever feasible and economical. Accordingly, all SCARWAF units are returned to Army control, and the Army is to be responsible for providing overseas military construction support to the Air Force.

Both airbase construction and major repair in overseas areas will hereafter be performed by Engineer construction units under Army command, in accordance with requirements of the Air Force. Activity of the Air Force itself will be limited to organization and training of base personnel into emergency bomb damage control teams.

A substantial reduction in Engineer troops assigned to Air Force overseas construction is called for by the new order. At present, the Air Force has places for 24,000 men in SCARWAF units, while the Army has 6,000 for troops in training. The Air Force allotment is now placed in reserve—suspended for the time being, or until needed later—and the Army quota is increased by only 7,500.

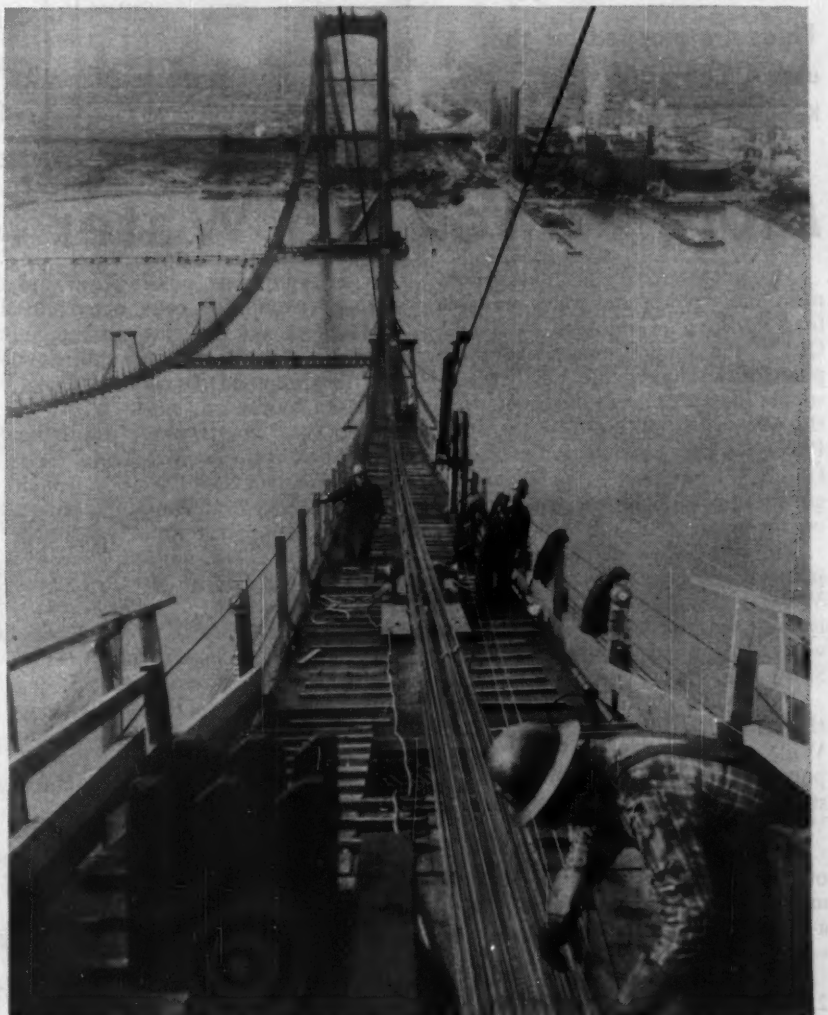
This means that the Army, with a new total of 13,500 has only that number of places to take care of 24,000 men being returned by the Air Force.

Tightening and streamlining of the overseas military construction organization is necessary under the new order. The manpower cut will be made up in part by assigning men in training to construction units.

But, at the same time, the number of construction battalions assigned to overseas Air Force work will be reduced. Prior to the order, there were about thirty SCARWAF battalions, with roughly two-thirds of them overseas. New Air Force requirements for this year and next, approved by the Defense Department, call for only eight battalions overseas.

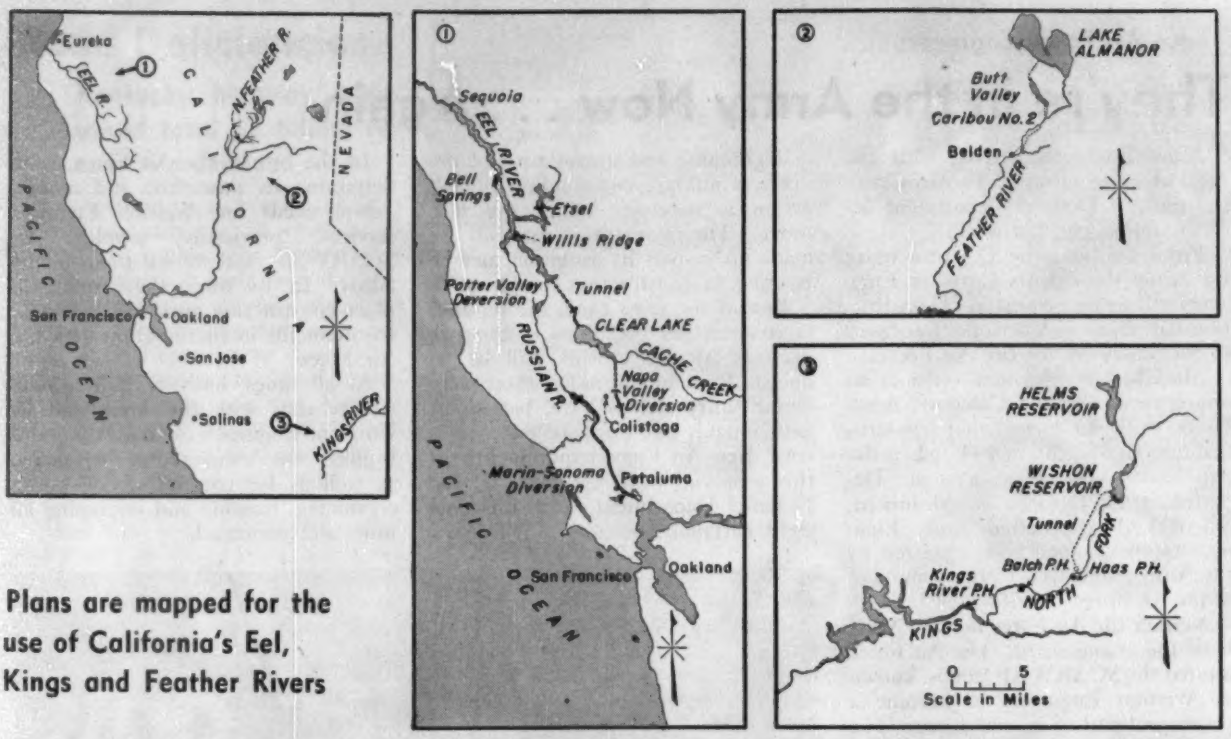
In the future, the Air Force, is to determine its peacetime and mobilization needs for Aviation Engineer services, previously supplied by SCARWAF, and submit them to the Army. In its turn, the Army will place construction units to meet these requirements in coordination with the Air Force.

At all times, however, full responsibility rests with the Army and its Corps of Engineers for budgeting and funding the construction battalions, as well as for controlling, directing, organizing, training and equipping all units and personnel.



Cable Spinning Starts On Walt Whitman Bridge

Catwalks span the Delaware River between Philadelphia and Gloucester City, N. J., as American Bridge workers begin spinning the 37-strand, 11,396-wire cables that will support roadway of Delaware River Port Authority's new Walt Whitman Bridge. The $90 million structure (ENR June 2, p. 51) will supplement authority's existing Philadelphia-Camden bridge. Work here is on north cable. Meanwhile, Bethlehem Steel has started shipping steel for roadway structure to bridge site, ready to go to work as soon as possible on its superstructure contract.



Plans are mapped for the use of California's Eel, Kings and Feather Rivers

More Power and Water for California

Two recent moves are destined to make more power and water available for northern California residents. One is the announcement of a state plan for developing the Eel River to supply the water needs of six counties; the other is the approval by the State Public Utilities Commission of Pacific Gas & Electric Co.'s application to go ahead with hydroelectric projects on the Kings and N. Feather Rivers.

The Eel River project, just one phase of the state-wide California Water Plan to be completed in 1957, is designed to boost the supply of water in Marin, Sonoma, Napa, Lake, Solano and Yolo Counties.

Three dams would be erected on the Eel-Sequoia, Bell Springs and Willis Ridge. Water would be pumped from Sequoia to the upstream reservoirs—Bell Springs and Willis Ridge.

Another dam, Etsel, would be built on the middle fork of the Eel, and middle fork water would flow through a power plant into Bell Springs Reservoir.

The Eel project would develop 2,600,000 acre-ft of water per year for export.

A 12-mi tunnel would be constructed to transport about 2,280,000 acre-ft of this water from Willis Ridge, southernmost reservoir, to Clear Lake. Most of this water would flow through Clear Lake down Cache Creek, serving Lake, Yolo and Solano Counties.

A series of dams, power plants and reservoirs would be constructed also on Cache Creek, at sites not yet determined. Surplus water would flow into the proposed Sacramento Canal and then southward.

At several points water would be diverted from this main system.

The Potter Valley Diversion would transport water from the Willis Ridge Reservoir through a tunnel and two power plants to the Russian River.

The Marin-Sonoma Diversion would take water from the Russian River and carry it through a 50-mi canal to regulating reservoirs in the Petaluma Valley.

The Napa Valley Diversion system would carry water through a 23-mi conduit from the southern tip of Clear Lake south into Napa County and a power plant near Calistoga.

Contemplated in the Eel River plan are 10 reservoirs with storage capacity totaling 13,000,000 acre-ft, and 10 hydroelectric power plants with total capacity of 2,600,000,000 kwh per year of which 1,700,000,000 kwh would be used for pumping.

The Eel River project does not conflict with the Bureau of Reclamation's Trinity River Project or the state's plans for the Feather River Project.

The Pacific Gas & Electric Co. projects will involve the construction of three dams, five powerhouses and expansion of an existing power plant.

The permits granted follow approval of the scheme by the Federal Power Commission (ENR May 5, p. 25). Included in the projects are two dams to be built on the Kings River—Helms and Wishon—and two power plants on the Kings. Three power plants are to be built on the N. Feather River—Butt Valley, Caribou No. 2 and Belden—and a diversion dam will be built downstream from Caribou No. 1.

The Kings project will cost $79 million; the N. Feather River project will cost $70 million.

The utility has already started preliminary work on the Wishon site on the Kings River and work on the Wishon Dam itself and Helms Dam will begin next spring. No construction schedule has been announced for the N. Feather River scheme, but PG&E has until November 1957 to start Butt Valley and Caribou No. 2 power plants and until November 1959 to start Belden. It will take about three years to finish each one.

In the N. Feather River system, an 11,000-ft tunnel, 11 to 13 ft in dia, and a 6,700-ft penstock 12 ft in dia will transport water from Lake Almanor to the Butt Valley power plant. A 9,200-ft tunnel, 12 ft in dia, and a 2,400-ft penstock 10½ ft in dia will deliver water to Caribou No. 2.

A 150-ft-high concrete diversion dam will back up water for Belden powerhouse to the tailrace at Caribou No. 2. The dam, 505 ft long at the crest, will create a 2,500 acre-ft reservoir.

Carquinez Bridge

Bids for major sections come under estimates on California river crossing

Four contracts for the Carquinez Bridge and its approaches, bid in Sacramento, Calif., last week, came well within the money the California Toll Bridge Authority expects to have available for construction.

Money for the project will come from a $46-million bond issue.

The new bridge parallels an existing bridge. It will have two 1,100-ft long cantilever spans, and is expected to be in service by the end of 1958. (Details on the bridge will appear in next week's issue.)

Closest bidding last week came on the superstructure contract which was also the largest of the four. American Bridge Division of U. S. Steel Corp. was low with a bid of $9,489,126. Second low, with a bid of $9,523,960, was a joint venture headed by Judson Pacific Murphy. This low bid also includes Fred J. Early, Jr., and Co., Inc., Peter Kiewit Sons Co., and Stolte Inc.

Low bidder on the substructure was Mason & Hanger-Silas Mason Co., Inc., and F. S. Rolandi, Jr., Inc., with a proposal totaling $5,454,694. Second low bidder was a joint venture of Ben C. Gerwick, Inc., Morrison-Knudsen Co., Inc., and MacDonald Young and Nelson, Inc., which bid $5,578,845.

• **Ten bids on approach**—A three-mile approach freeway that features a single highway cut in excess of 8,000,000 cu yd was bid at $7,098,690. Low bidder was a combination of Ferry Bros., John M. Ferry, Peter L. Ferry & Son, and L. A. and R. S. Crow, of Glendale, Calif. Second low of 10 bids was $7,583,189, submitted by McCammon-Wunderlich Construction Co., Palo Alto, Calif.

The fourth contract was for a complicated interchange structure at the south end of the bridge. Peter Kiewit Sons Co. was low bidder at $4,661,462. Second low of 11 bids was a joint venture of Walsh Construction Co. and J. H. Pomeroy Co., Inc. The second low bid on this phase of the work was $4,843,449.

• **Bid protested**—J. Philip Murphy, acting on behalf of Judson Pacific Murphy-Kiewit, has protested award of the superstructure contract to the American Bridge Division of United States Steel Corp. on the grounds that the low bidder does not have a California contractors' license.

The license is held in the name of U. S. Steel Corp.—not the American Bridge Division of United States Steel Corp. Murphy has asked that the contract be awarded to his group as lowest legitimate bidder.

California Attorney General Pat Brown has been asked for a ruling. If he rules in favor of American Bridge, Murphy plans to seek an injunction. Murphy bases his opinion on 12 years' service on the California Contractors' License Board.

Kansas Turnpike

21.7% of the 236-mi toll road has been completed

Nearly one-fourth of the construction work on the 236-mi Kansas Turnpike has been finished.

The latest progress report shows a construction gain of 3.4% during October. By the first of November the gain had risen to 21.7%. If plans go according to schedule the superhighway will be completed by next October as a link between Kansas City, Topeka, Wichita and the Oklahoma border.

Some $97.5 million in contracts had been awarded by the first of November. Most of the remaining contracts—an estimated $5 million worth—will be up for bidding by the first of the year.

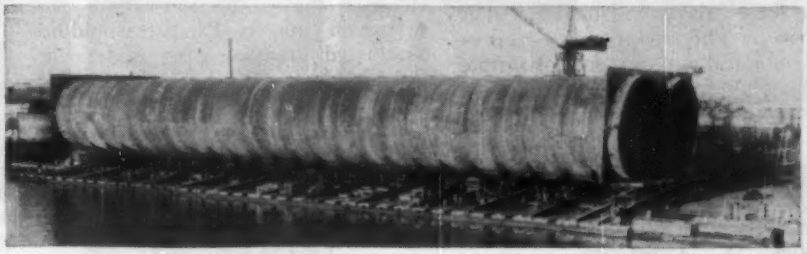
Kansas contractors have been successful in winning 31 of the 72 contracts already awarded. Their money total is about $46 million, or 47% of the total. Thirteen other states are represented by the rest of the contractors.

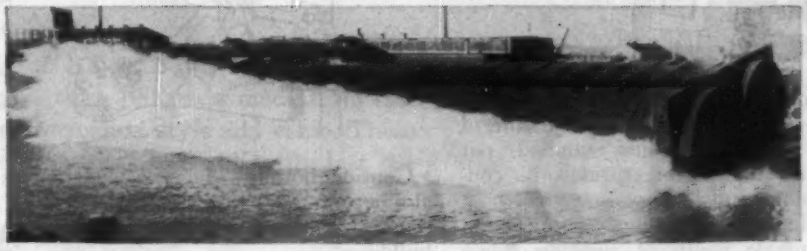
Construction still to be put under contract includes 2.3 mi of right-of-way fencing in Kansas City, roadway signs and markings, lighting systems for interchanges, service and maintenance areas, a communications system, toll plazas, and the administration building east of Wichita.

The progress report lists 232.2 mi of right-of-way available. All 236 mi of grading are under contract and 231 mi are under construction. In addition, all of the 253 bridges are under contract and construction has started on 244.

So far, right-of-way has cost $7.4 million, which is some $2 million over preliminary estimates. According to the progress report 490 tracts involving 167 landowners were acquired by negotiation and 2,131 tracts involving 803 owners, by condemnation. Appeals seeking higher awards have been filed by 251 landowners. The Kansas Turnpike Authority has appealed 261 cases.

One of the major problems remaining is relocation or alteration of more than 700 utility lines that cross the route. These utility adjustments, which have cost about $2 million so far, range from a single-wire rural telephone line to a 30-in. gas transmission line.





Steel Casings Launched for Vehicular Tunnel

Big splash is result as twin steel casings for Baltimore's new Patapsco River vehicular tunnel are launched sidewise at Maryland Shipbuilding and Drydock Co. yards. Twenty-one double sections, each 300 ft long, will join end to end to form the 6,300 ft underwater section of the tunnel (ENR Apr. 17, 1955 p. 26). Nine sections are being built by New York Shipbuilding Corp., others by Maryland Ship. Merritt-Chapman & Scott of New York is at work under a $29.9 million contract for the tunnel phase of the work, some contracts for more than 15 miles of approach roads have been let by the Maryland State Roads Commission.

Singstad & Baillie of New York are consultants on the project.

Cutting Costs? GSA Shows the Way

Better structures at lower cost—that's the aim of the just-published revised federal building standards. And in these new standards are some cost-cutting tips for designers outside of the government.

The General Services Administration and its Public Buildings Service have adopted the changes in basic standards and specifications to take advantage of advances in commercial practices.

Here are a few of them:

• **Build with blocks**—Of greatest general interest are recommendations on functional design of office buildings. The economical block-type building used by PBS to house the General Accounting Office in Washington was pointed out as an example.

For efficient utilization of large areas of floor space in buildings of this type, the new standards propose a module of 25 x 24 ft for office layout. The recommended minimum-size office for a government department is 25 x 50 ft. This size permits a number of economical arrangements of private offices plus desks and files in open areas.

• **Don't waste space**—To reduce the amount of space used for the core of the building, the new standards put special emphasis on corridors, air conditioning and elevators.

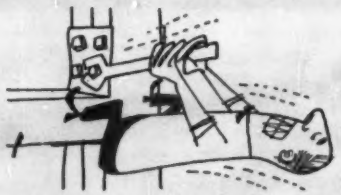
The new rules reduce the minimum acceptable width of corridors down to five feet.

With regard to air conditioning, the standards recommend consideration of high-pressure systems along with radiant cooling to reduce duct size and the space requirements of equipment.

For elevators, the revised rules suggest: Use the largest cars justified by the building and the maximum possible interval between cars; split the elevator system into banks serving different floors wherever this division would mean a saving; use high-speed elevators for express runs only, providing they reduce the number of cars and total cost of the system. Further, moving stairs should be considered for part of the vertical traffic when they can save costs.

• **Don't waste vertical space either**—Under the new criteria, floor-to-ceiling height will be held to a minimum. A height of 8½ ft is recommended where lighting fixtures are recessed with increases when the fixtures are suspended.

• **Take off parapets**—Parapets would be eliminated in many cases under the new standards. Where protection for men working on roofs is required, metal rails would be used. However, PBS explains that parapet walls may be used for fire divisions or other special purposes.



• **Consider bolting**—The new standards also recommend greater use of high-tensile bolts in erection of steel-frame buildings.

• **Don't overdesign**—Structural live-load criteria are being reduced. One example: Requirements for office floors will be reduced from the present 80 psf to 50 or 60 psf, with an allowance of 20 psf for floating partitions. For private rooms and wards of hospitals where partitions are not fixed, the standards include a reduction from the current 60 and 80 psf to 40 psf.

Roof snow loads are to be reviewed too; PBS is amending and generally reducing roof live-load criteria. The agency also recommends that wind-pressure values be substantially reduced to conform with the 1952 edition of the Uniform Building Code.

Among other points made is the establishment of new heating criteria. Emphasized are adequate furnace volumes for boilers, ample air inlets to boiler rooms for combustion, and insulation of steel stacks and boiler-room ceilings inside buildings. Radiant heating is recommended for outside truck ramps in cold zones and is to be considered for melting snow on sidewalks and entrances of large buildings.

There is also a significant reduction in the amount of work a general contractor must perform with his own forces. On a General Services Administration project, a contractor must perform 12% of the work with his own forces as against the 25% required under previous rules. It is thought that this change in the work requirement will help bring more general contractors into competition for jobs and still protect the government against broker-type operators.

• **Recommendation summary supplied**—A 21-page summary of the revised standards, with three pages of attached comment, has been supplied to each architect-engineer firm now working on plans for lease-purchase or government financed buildings.

PBS design handbooks that furnish details supporting information are being amended to incorporate the new standards.

Overall, the new standards may affect the future design of some $2 billion worth of identified projects in the current backlog of buildings needed by the federal government.

In an immediate sense, the standards will apply to more than $300 million of approved or proposed lease-purchase projects and to $40 million worth of federally-financed buildings under study at this time.

The changes are the product of an industry panel of architects, engineers, contractors and building managers after nearly a year of study. Peter A. Strobel, former Commissioner of Public Buildings, called the eight-man advisory group together last year (ENR Nov. 25, 1954, p. 18).

Public Buildings Service accepted the panel's final recommendations without reservation, adding only clarifying comments to help architect-engineer contractors in applying the new standards.

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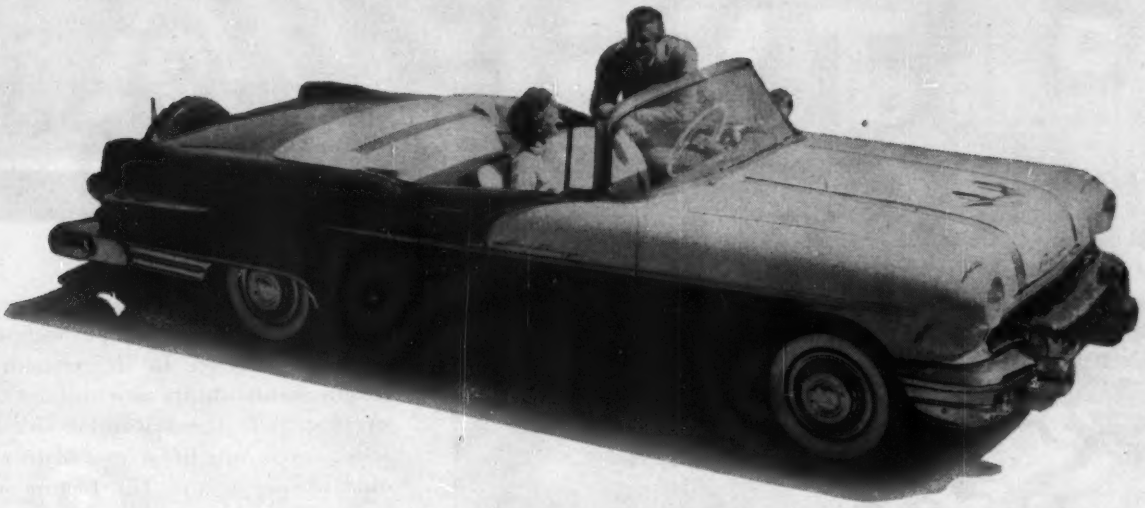

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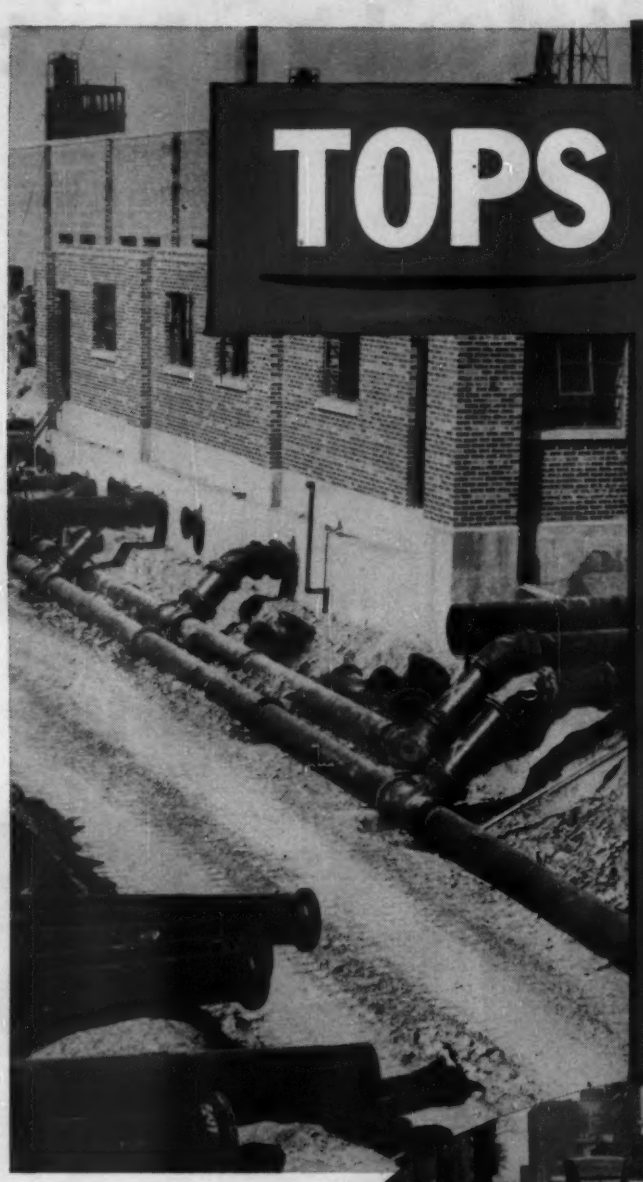

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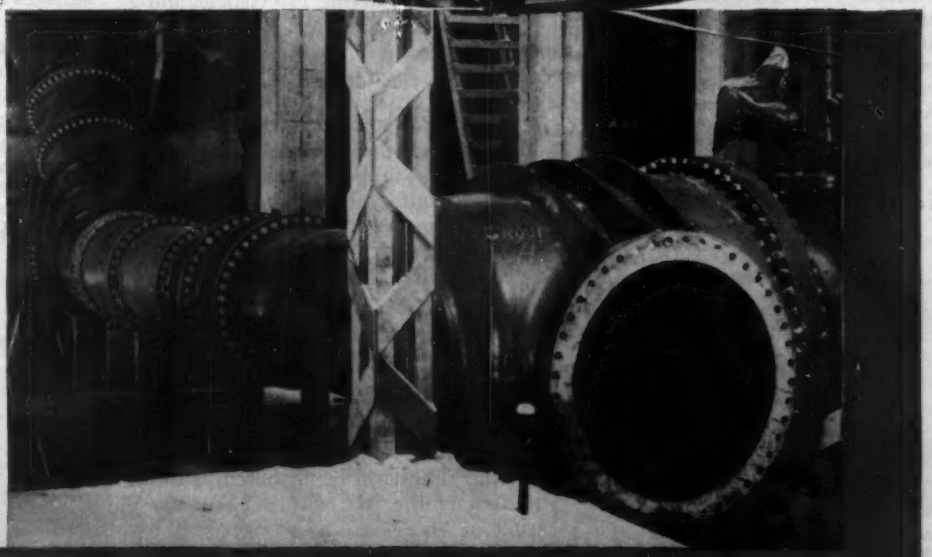

Installation of cast iron pipe and fittings in large filtration plant in Chicago, Ill.

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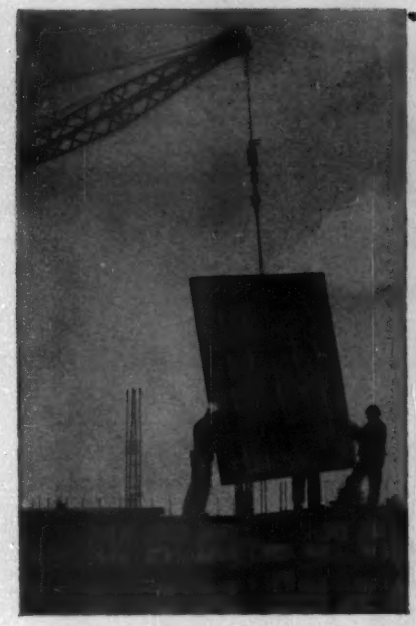

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Delay in Service

Delaware Bay ferry plan runs into financial snag

A proposed Delaware Bay ferry service has run aground on a financial sandbar.

The New Jersey Highway Authority has learned that it would not be financially feasible for private capital to develop a ferry service linking Cape May, N. J.–southern terminus of Garden State Parkway–with the town of Lewes in Delaware.

A group of New York businessmen, headed by George Sanders, president of Hudson River Dav Line, Inc., has been studying the ferry proposal for the past six months at its own expense. Now it has given the Highway Authority a report on findings.

The report states that such a ferry service would be physically possible but would be a deficit operation at the beginning and probably for some time to come. Sanders estimates the cost of the proposed service at $17 million and says that the only way in which the service could materialize would be for the state to provide the money.

Sanders, in his report, estimates that ferries would cost about $8 million. Two terminals–one on the New Jersey side and the other in Delaware–would cost $4 million. In addition, annual deficits over a five-year period would total $5 million.

As outlined in the report, two new boats would make the 13-mi run between Cape May and Lewes in slightly more than an hour. Each boat would be capable of carrying 150 vehicles and 1,000 passengers.

Bids To Be Called Dec. 20 For British Columbia Span

Bids for the approaches and causeway of a $6-million combined causeway and pontoon bridge across Okanagan Lake in central British Columbia will be received Dec. 20.

The projected bridge will replace a ferry service on one of the main north-south routes in the provincial highway system. It will have an overall length of 4,380 ft and will consist of a rock-fill causeway, a vertical lift-span, and a 2,000-ft pontoon section. The pontoons will be reinforced concrete, 200 ft long. They will be anchored to the bottom of the lake with a $2\frac{3}{8}$-in. dia cable.

The new crossing was designed by Swan, Wooster & Partners, of Vancouver, B. C., in association with Charles E. Andrew, of Seattle, principal engineer in charge of design and construction for the Washington State Toll Authority.

On jobs like famed Parklabrea housing project, users report...

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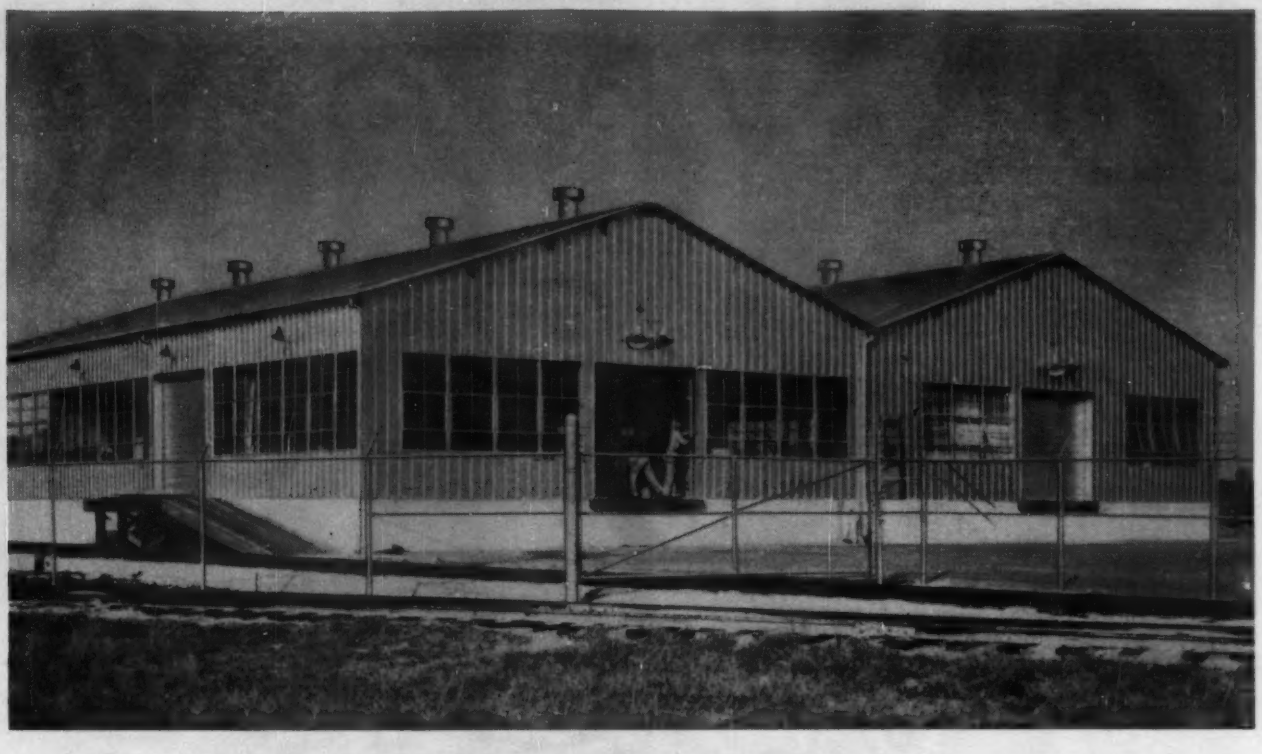

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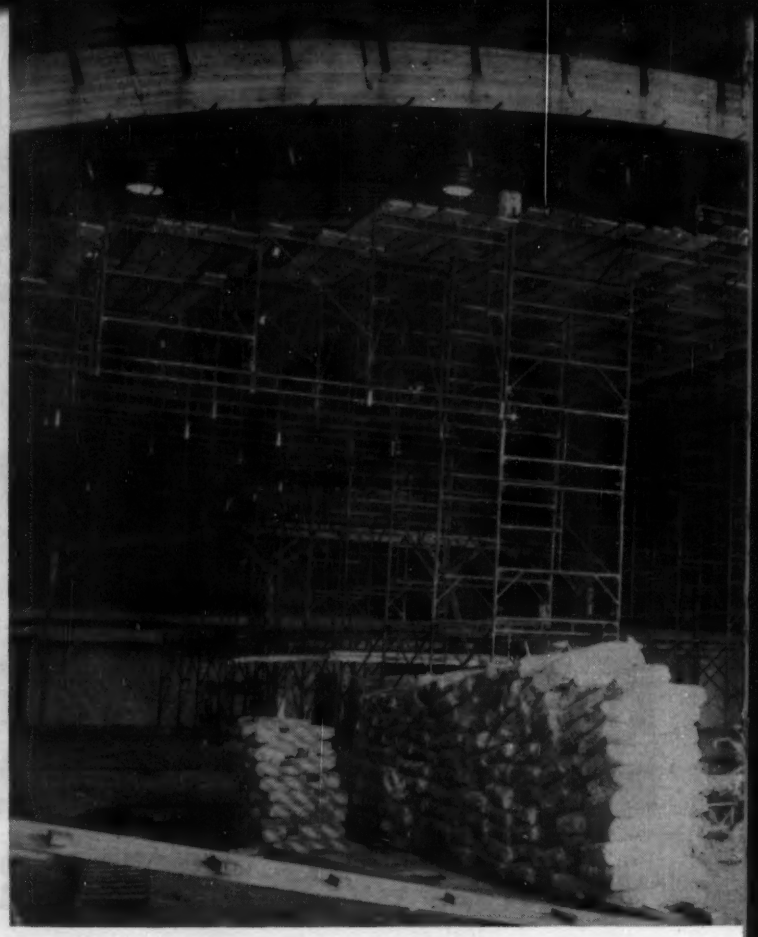
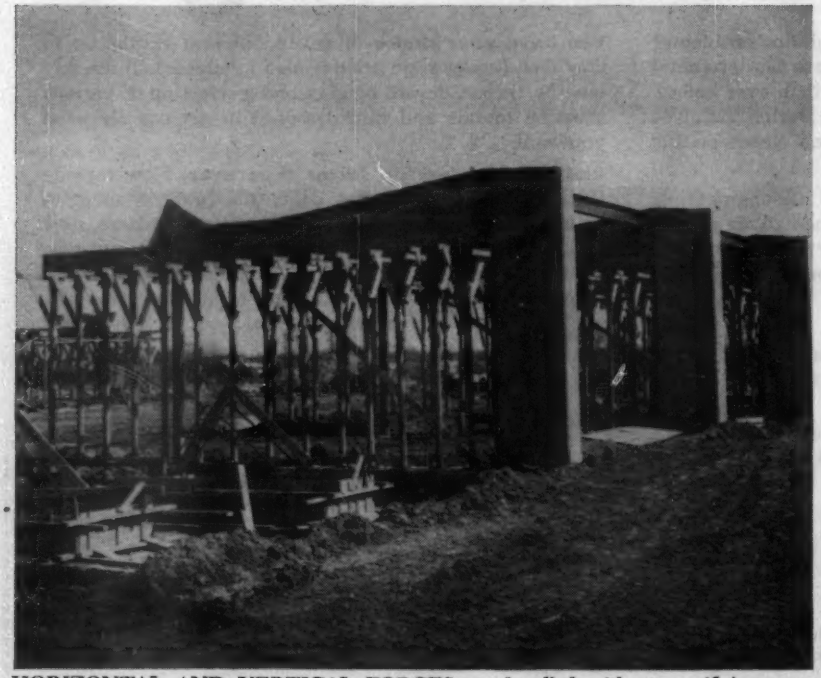


"Floating Effect" . . .

. . . is achieved by a glazed transition panel (see arrow) that runs the length of two sides of the supermarket. It was apparent even during construction despite naked arches and purlins, and through bays of the staging.

Unusual roof treatment for market gives "new look"—unobstructed area

Unique C-Frame

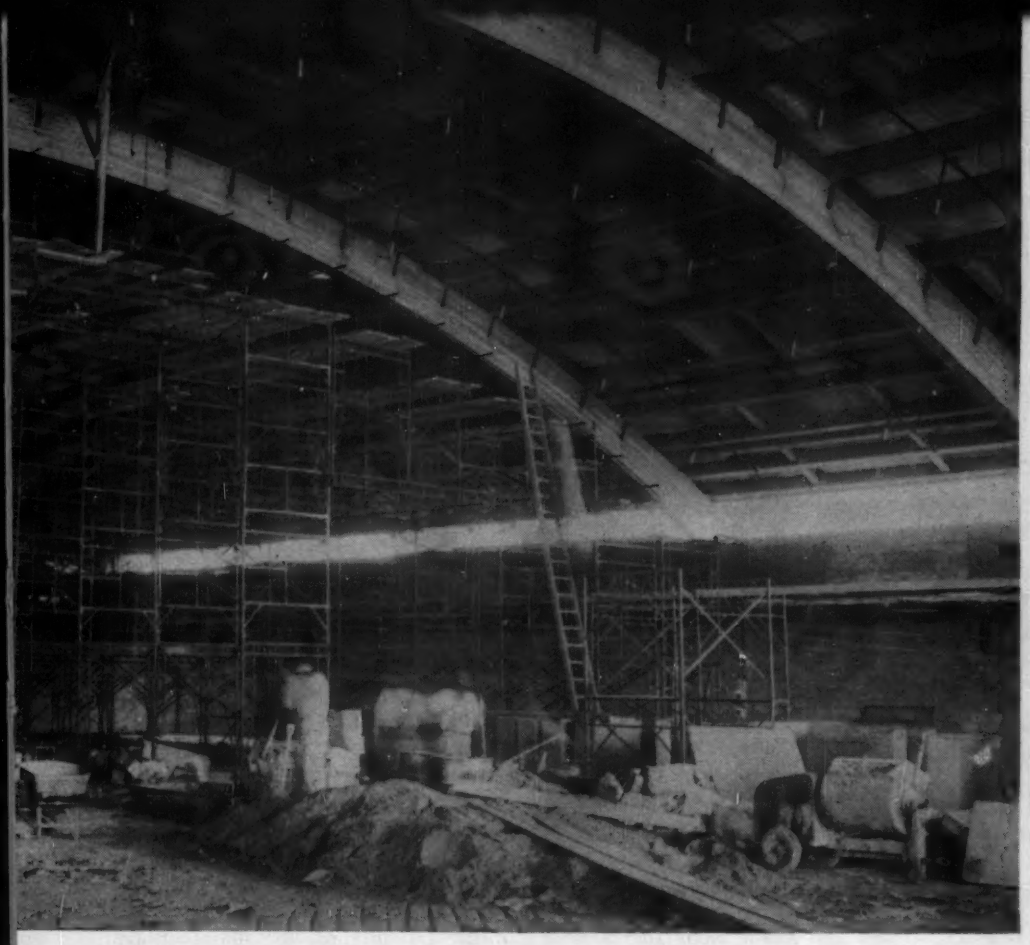


HORIZONTAL AND VERTICAL FORCES are handled without sacrificing open areas in frames. Pipe columns at buttress-arch juncture points take vertical loads.

One of the most interesting roof structures introduced to the shopping center field in recent years has been designed for a supermarket, dominating feature of the Black Horse Shopping Center in Audubon, just east of Camden, N. J. Design of reinforced concrete cut-away ("C" frame) buttresses and integration of a glazed transition panel running along two sides of the market give the roof system an open, "floating" effect.

Evolution of the roof treatment began when Penn Fruit Co., Philadelphia, Pa., developers of the center, specified that the floor area of the main portion of the building (113.5 x 154.5 ft) be unobstructed. This area, unlike most market buildings that have columns rising from food shelves for support of roof systems, has been designed and constructed as a clean arch structure, uncluttered by visible ties or lower bow-truss chords.

Penn Fruit, which grosses $145 million per year through operation of 35 stores and 10 shopping centers in the Pennsylvania area, opened this

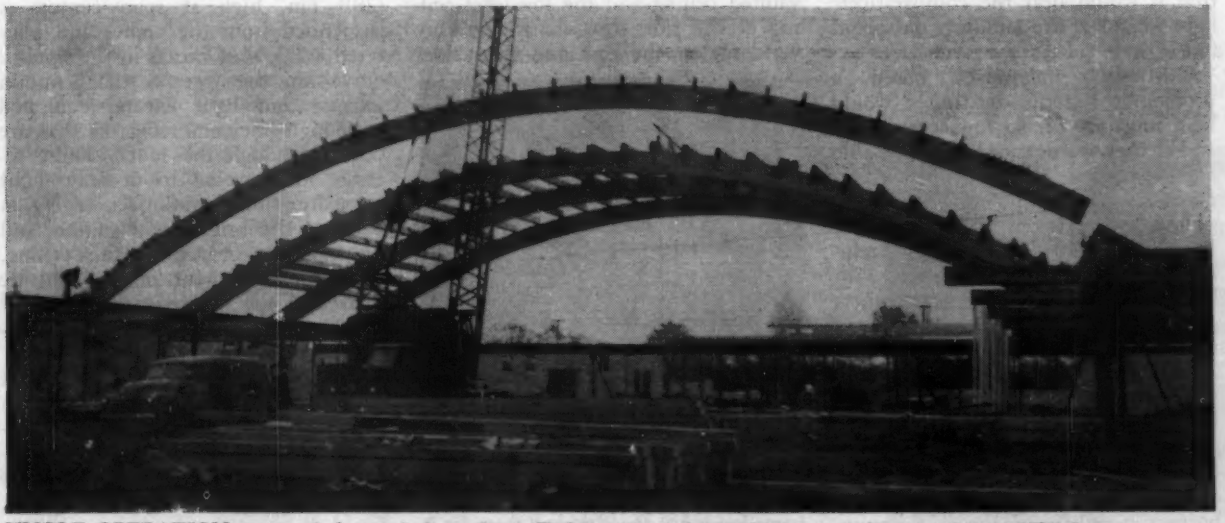


Buttresses Relieve That Hangar Look

latest center Oct. 26 upon completion of the first of two stages of construction. The present stage, which includes the supermarket building, a tenant store wing building and a second wing section, to be occupied by W. T. Grant Co., will exceed $1 million in cost that includes a 635-car parking lot. It will contain 91,000 sq ft of retail sales area in the three buildings.

The second stage, which will raise the retail sales area to 310,000 sq ft and the parking facilities to 2,800 cars, will not be started until trade population demands it. Calculated trade population for the new center

(Continued on page 36)



SINGLE OPERATION moves timber arch into place. End at right is lowered to rest on bearing plate of "C" frame.

ANCHORED BUTTRESSES on grade (foreground) bear two exposed arches that support the deep overhang at the market front. These show members are 40 ft longer than main roof arches that are borne on the "C" frame buttresses (at right).

has been placed at more than 250,000 persons.

First consideration in design of the roof was necessity for more than 17,000 sq ft without obstruction of any kind. Victor Gruen Associates, designers of the project, decided to meet this requirement with 2-hinge laminated timber arches, with timber purlins used to support the roof deck.

Foundations presented a problem as a result of the thrust created by the 133 ft 7 in. arch members A soil test indicated that 14 ft below grade was mucky clay, with fines constituting most of the soil above it, but that it would bear the comparatively light weight of the buildings on spread footings.

Buttresses themselves posed a problem. Exterior buttresses would look ungainly on so low a building, and if they were placed inside, usable areas between them would be, in effect, small cubicles with no communication between them. So the final design was set for rigid reinforced concrete "C" frames with horizontal top and bottom members and a vertical member that acts as a framing column for the low exterior wall. The C-frame buttress was designed so as to transmit horizontal thrust along the members and thence into an arch tie below the floor slab. Vertical reactions are carried by pipe columns, anchored between top and bottom members of the "C" frame. Thus a low arcade along the sides of the main vaulted area was created, and in addition to other advantages mentioned, working and "fixturing" around buttresses was eliminated.

Concrete for the frames was placed in three sections, and was specified for 3,750 psi at 28 days. The two front arches that bear an overhang span of 154 ft 1½ in., bearing on buttresses at grade level. These are the only exposed arch members.

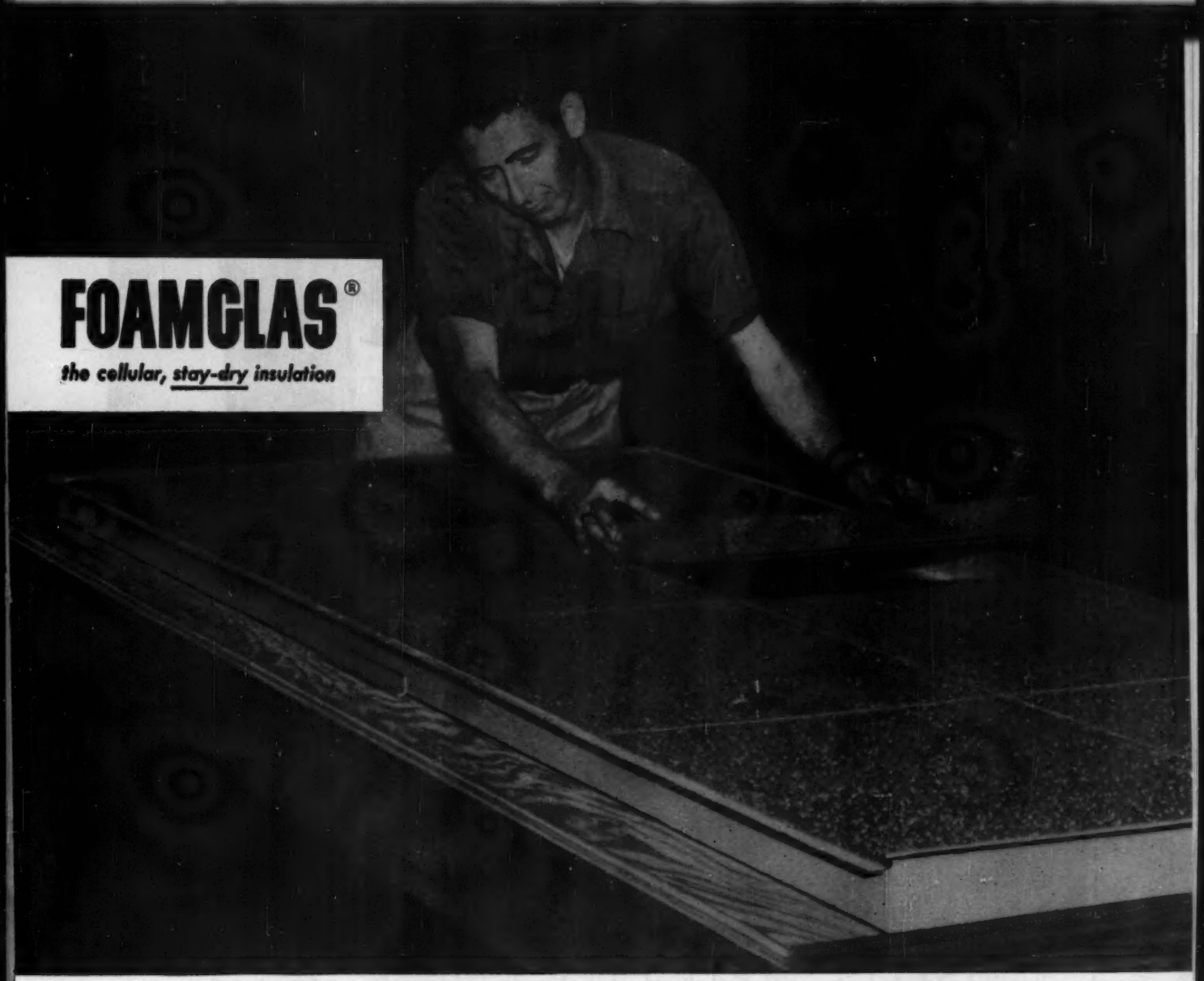
Each arch was shipped to the site in two sections, field spliced in the center and erected as one unit. As a transition element between the high vaulted ceiling and the low-level ceiling of the side areas, long clerestory windows on the east and west sides of the building provide illumination for the market and give a "floating" effect to the ceiling area. The "floating roof" virtually eliminates the barnlike or hangar appearance found in many vaulted buildings. The front end of the building is glazed to form a large arched window, with the balance of the exterior in face brick, porcelain enamel and painted steel.

WHERE DOES CONCRETE GO?—Reinforcing steel at a transition point in "C" frame leaves just about enough room for it.

Roof purlins are 6x14 timbers spaced four feet on centers and bolted to the laminated arches. Decking consists of 32 x 96-in. by 3-in.-thick precast insulating gypsum units.

The ceiling of the vaulted section (28ft 6in. high at span center) is suspended from the arches and plastered. The only breaks in the smooth curve are the recesses that contain incandescent light fixtures equipped with high-efficiency reflectors that are vented through the roof. These recesses are beveled to decrease light intensity thus forming a transition between the bright light sources and the dimmer surface of the ceiling. The vent treatment on the outside surface of the roof is in the form of brilliantly colored domes that contrast with the white roof proper.

Edgardo Contini was the chief structural engineer for Victor Gruen Associates; The McClain Construction Co. of Philadelphia had the general contract and laminated arches were fabricated by Timber Structures, Inc.



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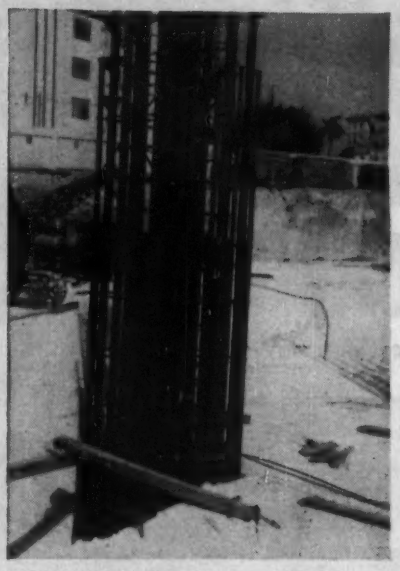


COLUMNS TO RESIST WIND have 64 vertical bars. Above basement, designers switched to bearing walls.

Havana's 24-story hotel—

Concrete Skyscraper Designed for Hurricanes

Hurricane winds determined the structural framing of the 24-story Hilton hotel now under construction in Havana.

The Havana Hilton is another reinforced concrete skyscraper for the Cuban capital. Unlike the unique 39-story slab and bearing-wall "egg-crate" apartment structure nearing completion a few blocks away (ENR July 28, p. 34) the Hilton has massive columns in its lower stories. But then, through its entire tower height, it, too, has reinforced concrete bearing walls to carry vertical loads and resist lateral wind forces.

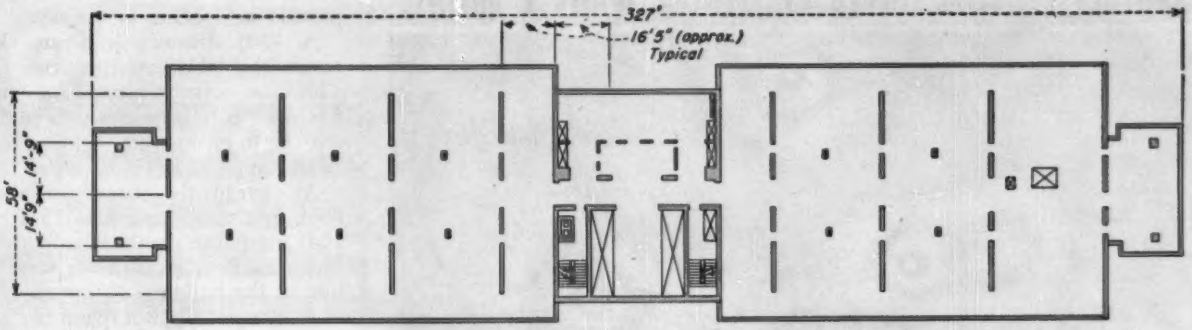
Very tall reinforced concrete buildings normally require columns of extremely large size in lower stories, leading most architects and engineers to favor structural steel framing for taller buildings. In addition, the extremely heavy lateral loads of hurricane winds would seem to be a further deterrent to adoption of reinforced concrete for a tall building in Havana. However, relative costs in Cuba dictate use of reinforced concrete rather than structural steel. Concrete was the choice, and it was up to the engineer and architect to solve the structural problems involved.

The hotel consists of a long, narrow, 22-story tower rising above a large 2-story and 2-basement base. The tower is 327 ft long by 58 ft wide, with continuous balconies, 8 ft wide, on both sides. The central section of this tower is a utility core, for elevators, stairs and mechanical services; it measures 50 x 58 ft, the latter the transverse dimension of the tower. The two-story base is trapezoidal in plan and is in reality two separate structures with an expansion joint between the 115-ft-wide east portion carrying the tower, and the 196-ft-wide west portion.

• **Wind intensity**—The first problem the structural engineer had to solve was what wind intensity to consider in design. This was not fully covered by the Havana building code. His conclusion was that wind velocity should be assumed at approximately 130 mph, which would produce a pressure of about 90 psf at the top of the building. Pressure, however, reduces in the lower portions, and his analysis indicated that the following loadings would be adequate—below the 7th floor, 50 psf; from the 7th to the 18th floor, 70 psf; and above the 18th floor, 90 psf. These loadings, when plotted against the building, resulted in an irregular curve. The curve was smoothed by using a formula for wind effect developed by the Navy's Bureau of Yards & Docks:

$$p = 0.00258 \frac{(h)^{2/7}}{30} V^2$$

Where p is wind pressure in psf,
h is height in feet above ground level,
V is wind velocity in mph.



BUILDING PLAN shows transverse bearing across the long skyscraper to brace it against hurrican forces.

The structure was designed using the Navy's formula with V equal to 131 mph.

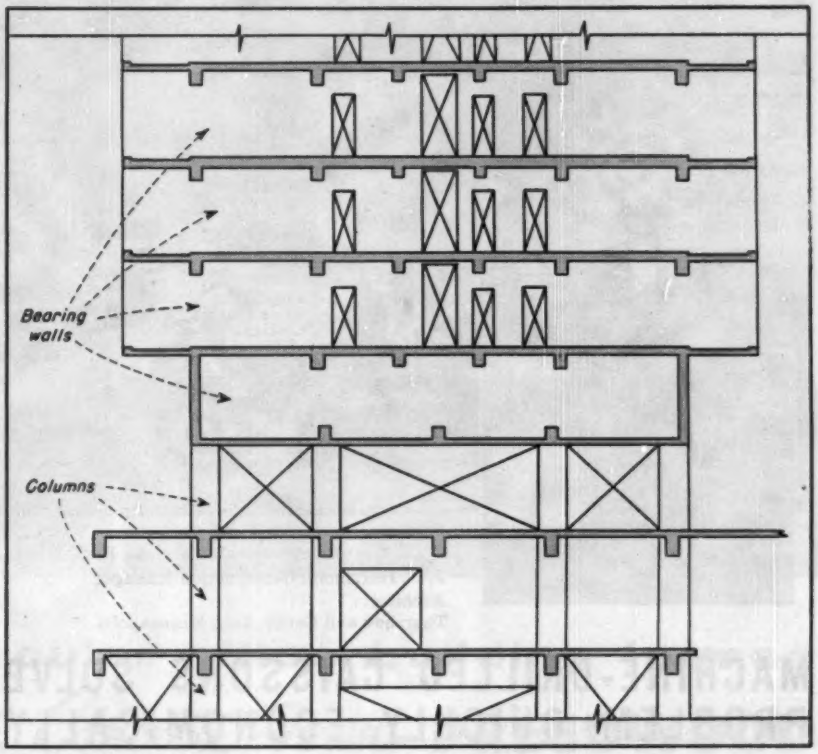
Columns one-meter square with up to 64 No. 11 reinforcing bars are required in the lower stories to carry the combination of vertical and wind loadings. These large columns, if carried above the second floor, would have adversely affected the architectural planning and the appearance of the building. The lateral loading due to hurricane winds would also have required excessively large transverse girders in the tower framing.

• **Walls prove answer**—The engineer's analysis indicated that the entire tower should be designed with transverse reinforced concrete bearing walls along the principal column lines, and completely around the central core. The thickness of these walls varies from 8 in. at the 23rd floor to as much as 20 in. at the third floor. Even with these fairly hefty wall thicknesses, 5,000-psi concrete is required in the walls as high as the 12th floor; 4,000-psi concrete from the 12th floor to the 20th floor, and 3,000-psi concrete above the 20th floor. The floor framing of beams, girders and slabs required concrete strength of only 3,000 psi.

Analysis indicated that the major portion of the wind forces would be resisted by the box section of the utility core. This concentration of stress resulted in particularly high shears at the corners of the core, due to the flange action of the box section.

Utility of the lower floors did not permit carrying the shear walls, except around the core, below the third-floor line. This necessitated the use of large column sections and heavy girder construction at the third-floor level to pick up the loads of the tower. It was also necessary to provide a heavy horizontal box section girder at the third floor to transfer the lateral loadings to the core section.

• **Other structural features**—Structural design of the base portion of the building includes some features of interest in addition to the building's lateral force design. For example:



VERTICAL SECTION shows columns in lower floors, bearing walls above.

Transverse joints of the building are provided so as to permit shrinkage to take place in each of three sections of the structure. These joints are one meter wide through all floor and wall construction at, and below, the second floor. Sixty days after having completed the pouring of the concrete in the three separate sections these delayed control joints will be filled.

Generally, the framing of the base of the building, from the second floor down, is of conventional beam and girder construction and reinforced concrete columns, except that in and around the utility core the reinforced concrete bearing walls continue downward to the foundation.

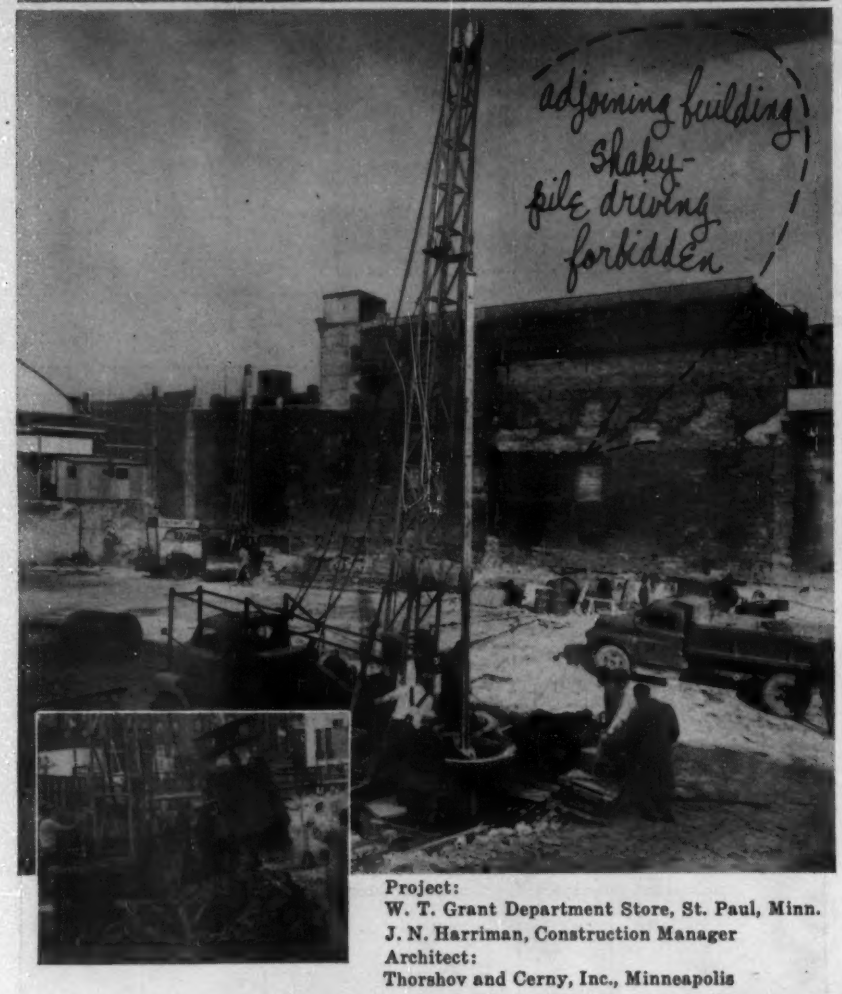
All reinforcing steel for the project is coming from Belgian mills, which ordinarily produce only four sizes—No. 4, 5, 6 and 8. Larger size bars were required to satisfy design conditions, and the Belgian mills made special rollings of No. 11 bars to accommodate needs of the project. Even so, detailing of the heavily reinforced columns and thick walls presented major problems. With as many as 64 No. 11 bars required in many of the columns, they were tack-welded together in pairs so as to minimize the congestion of steel.

• **Unusual design**—Even above its base portion, the project includes interesting and complex features which required special structural consideration:

The cabaret floor at the 24th level was planned on three different levels, each having a different, irregular free-form shape. The cabaret floor was cantilevered 16 ft beyond the exterior column lines, or 8 ft beyond the edge of balconies below.

A 26 x 63-ft section of roof over the dining area of the cabaret is built in

ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS



Project:
W. T. Grant Department Store, St. Paul, Minn.
J. N. Harriman, Construction Manager
Architect:
Thorshov and Cerny, Inc., Minneapolis

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two sections which can be retracted to provide an opening to the sky.

A 52-ft diameter concrete dome covers the lobby on the main floor. This large dome is pierced for smaller 5-ft dia plastic dome inserts at 6½-ft centers, to give natural lighting to the lobby area.

An irregularly shaped swimming pool, approximately 35 x 75 ft and 10-ft maximum depth, is supported at the main floor level in the west portion of the building.

A complete power plant to serve total needs of the project is provided at the lower basement level in the west portion of the building. Ramps from grade to this power plant will facilitate installation and repair of its heavy equipment.

The hotel will have 588 individual rooms and 42 de luxe suites with shear glass walls—all with private balconies. The entire hotel will be air conditioned, each room having its own temperature controls.

Guests arriving by auto will drive into an elaborately decorated court. There, attendants will take the car down a spiral ramp to an underground garage, where 450 cars can be parked.

• **Foundation problems**—The Havana Hilton's foundation is a typical local coral formation with natural voids and cavities. Foundation investigations indicated a safe bearing value of 25,000 psf—provided no large voids or cavities were found within the critical area of the bulb of pressure. As general excavation neared completion, it was found that in a major portion of the site the voids and cavities were of excessive size. This required extensive pressure grouting within the critical area of the bulb of pressure for practically all the major footings before they could be cast.

Footings of the central core were combined with the footings of the next adjacent column lines to the north and south to form a mat 72 ft east-to-west by 95 ft north-to-south. Coral rock around the entire perimeter of this mat footing was undercut to give resistance to uplift resulting from winds of hurricane intensity.

Murray Erick Associates of Los Angeles designed this high reinforced concrete building. The architect was Welton Becket Associates, also of Los Angeles. Between them, they worked out a design that achieves hurricane-resistant structural framing without sacrificing flexibility of architectural planning or appearance.

Frederick Snare Corp., New York City, is the general contractor. Manual Gamba is vice-president in charge of all Snare's extensive operations in Cuba. Manuel Ray Rivero is project manager on the Havana Hilton.

Capitol Records Building, Hollywood, Calif.
Architect: Welton Becket, FAIA, and Associates, Los Angeles, Calif.
General Contractor: C. L. Peck, Los Angeles, Calif.

World's first circular office building formed with MASONITE *Concrete Form* PRESDWOOD

A round office building for a firm making phonograph records? Sounds logical, doesn't it? Especially in Hollywood, where dramatic values are important.

It's logical, too, for the spandrel forms to be lined with a material that's easy to bend...one that leaves a beautifully smooth, easy-to-finish concrete surface.

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These dense, grainless panels, 4′ wide and up to 12′ long, are easy to cut and fit...can be used time and again. Write now for a sample and specifications that will help you to save money on your next forming job.

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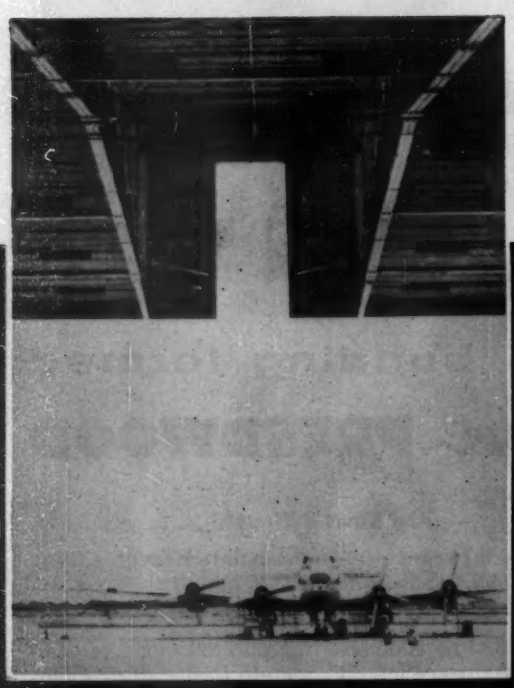
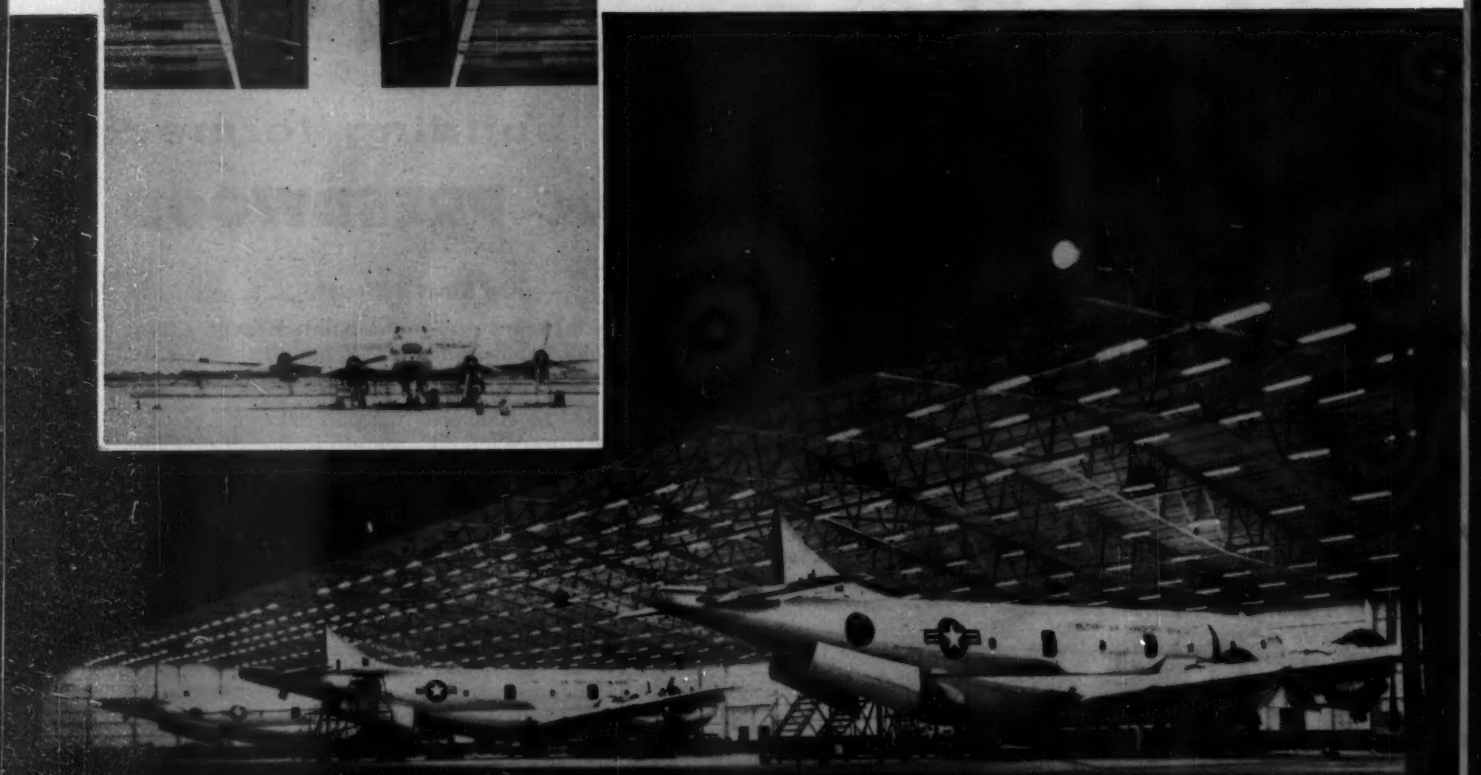
County.....*State*.....

The 76-foot-long member which connects the top ridge of the cantilever to the top of the inner column is designed to act either in tension or compression—supports weight of roof loading, and withstands 30 psf uplift from wind under roof.

Ingenious hangar



Vertical clearance rises to 45 feet inside the three tail housings which open at the edge of the overhanging roof to admit the tails of these Boeing Stratocruisers.



The unique hangar was designed and constructed by the Erwin-Newman Co., of Houston, Texas, under their patent No. 2,687,102.

The hangar is designed for 25 psf roof load and 15 psf horizontal wind force. Rear columns are bolted to deep concrete piers since they must withstand a pull of 14 tons per column from the weight of the cantilevered roof structure, which amounts to only 11.8 psf.

has no columns...

cantilever construction spans 120 ft. at cost of only $2.40 per sq. ft.

• The hangar area of this efficiently-designed building of Temco Aircraft Corporation at Greenville, Texas, is completely unobstructed by supporting columns. The clear area measures 120 ft. deep x 432 ft. long x 30 ft. high.

The roof is carried on 120 ft. steel truss cantilevers, connected by means of rocker joints to 56 ft. tall inner columns, which in turn are joined to 19 ft. outer columns placed 40 feet farther back. The space between the two rows of columns is conveniently used for workshops, parts storage, and offices.

The prefabricated Structural Steel framework for this hangar was bolted together in *only six working days*. The framing cost $2.40 per sq. ft. Framing and roofing cost $3.26, and the complete building including services, foundations, and 32,400 sq. ft. of concrete apron totaled $5.06 per sq. ft. Approximately 1,000 tons of Structural Steel were used in the building framework. Speedy construction was an important factor in holding down costs.

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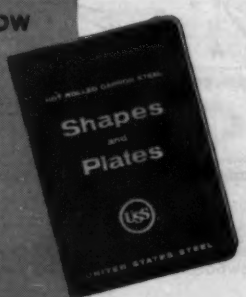

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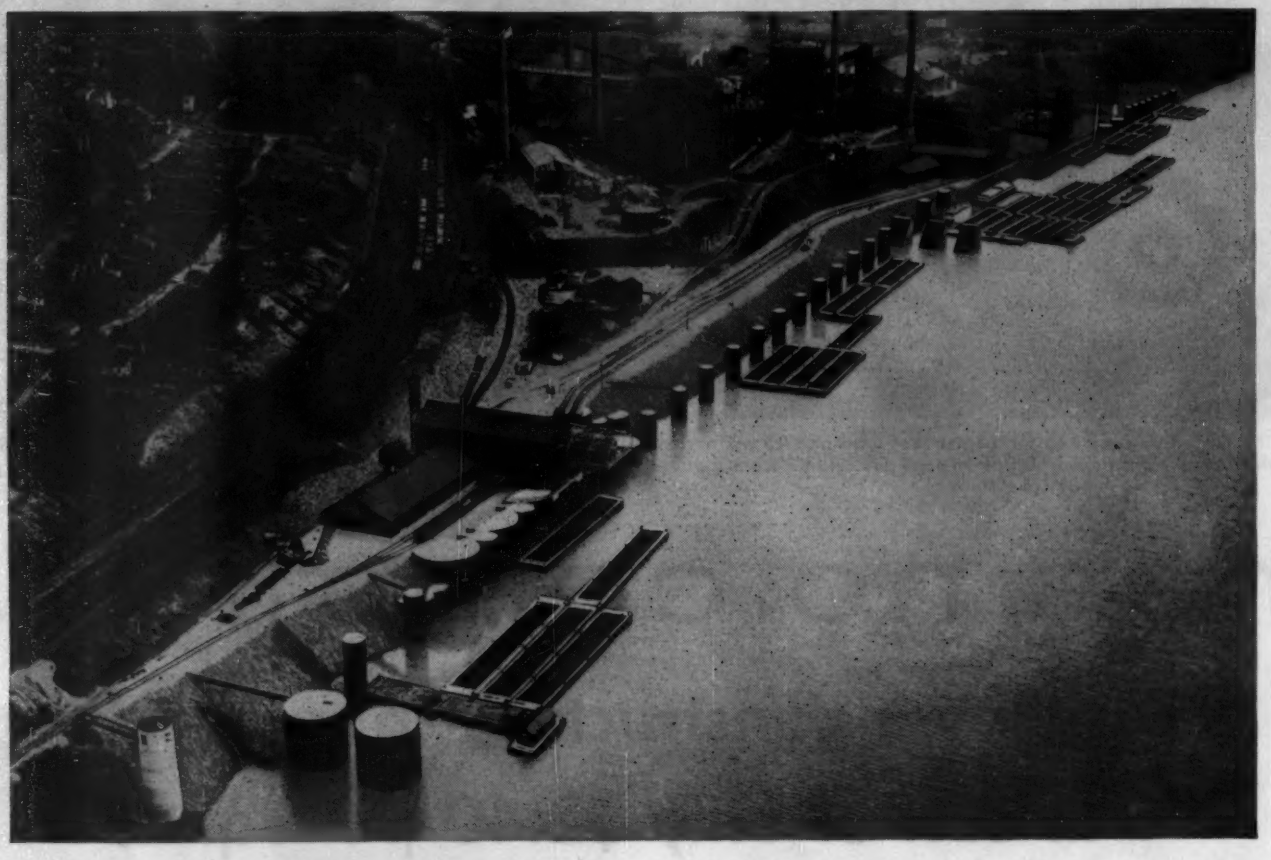


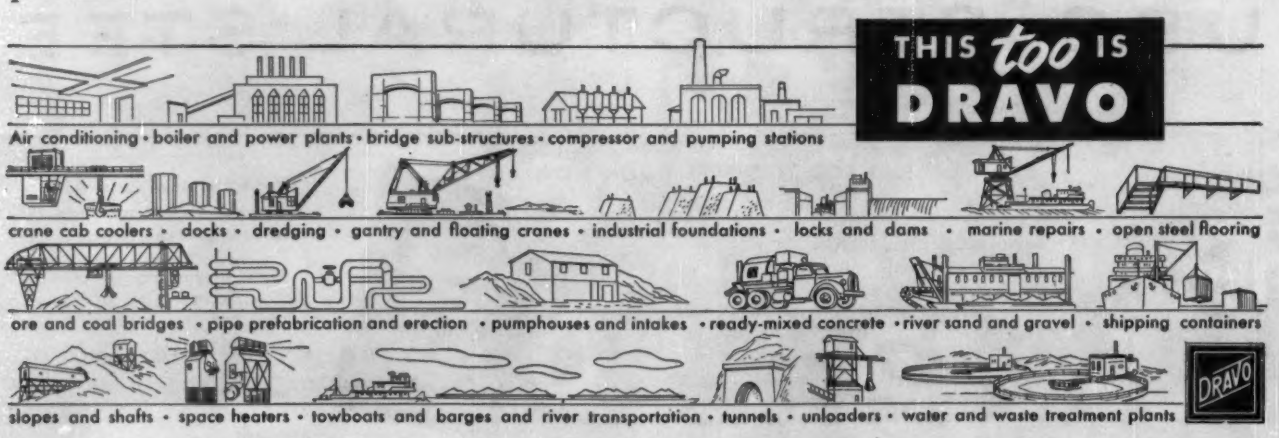
DRAVO EXTENDS WEIRTON STEEL'S DOCK AND HARBOR

Economy-minded business management is using river transportation to move increasingly larger tonnages of raw materials and finished goods. To realize the full potential savings, adequate docking and harbor facilities must be available to transfer cargoes with minimum delay.

When new warehousing and improved handling methods were being planned by Weirton Steel Company, a division of National Steel Corporation, management took steps to provide sufficient dock space for increased river traffic. Dravo Corporation was asked to survey alternate dock sites and future expansion possibilities.

A solution resulting from the study was accepted and Dravo constructed 1800 feet of new harbor including 26 steel sheet pile cells. This cellular type of dock, pioneered by Dravo more than twenty years ago, is reasonable in cost, adaptable to expansion and requires little maintenance.

This is just one of many ways Dravo has been serving business and industry for more than 60 years. Dravo considers customer satisfaction an essential factor in all its products and services. DRAVO CORPORATION, PITTSBURGH 25, PENNA.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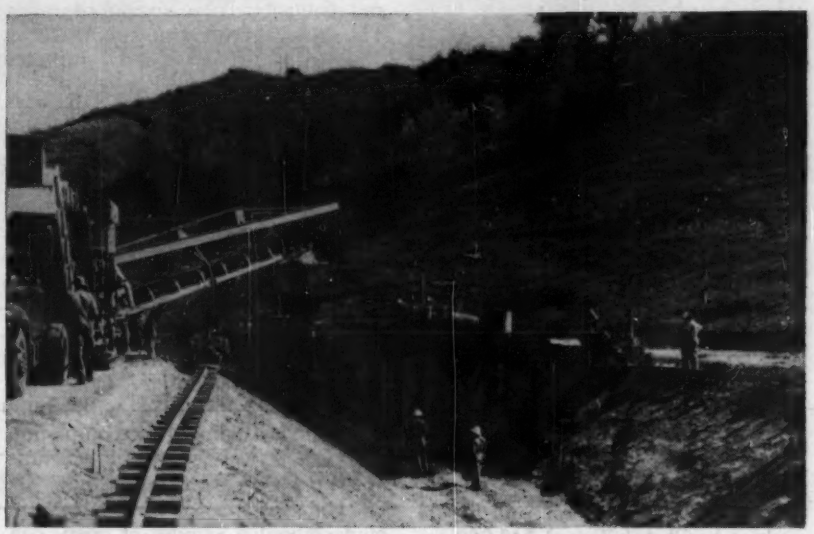
Utah's biggest irrigation job has . . .

DAMS This will be Wanship Dam, a key project feature, 155 ft high and totaling 3,000,000 cu yd of earth and rock.

PIPELINES Distribution lines are constructed of concrete pipe.

TUNNELS The 3.3-mile Gateway Tunnel is completed.



CANALS Gateway Canal has 700-cfs capacity. Gravel subbase material was placed by same canal-lining machine used for concrete.

Weber Basin Project Water Ready in 1957

Construction of the Weber Basin project—biggest irrigation job in Utah history—is rolling at a fast pace, to meet a schedule that calls for first water delivery in 1957.

Water from the $70 million project will irrigate lands on the shore of the Great Salt Lake just a few miles north of where early Mormon settlers are credited with developing the first irrigation works in U.S. history, 110 years ago. Some 50,000 acres of new land and 24,000 acres of land now inadequately irrigated will come under the project, which will also include flood control and land reclamation features.

Construction was started late in 1952, after a $1.3 million appropriation by that year's session of Congress. Development of the entire project is programmed over a 12-year period—dependent, of course, on Congressional appropriations. So far, appropriations have been sufficient to keep the work on schedule.

Basic elements to be completed to meet that 1957 deadline are:

- Wanship Dam—a 3,000,000-cu yd, 155-ft high earthfill structure on the Weber River.
- Gateway Tunnel and Canal—a 700-cfs capacity conduit including 3.3 miles of tunnel and 8.5 miles of canal with appropriate diversion works on the Weber River.
- Davis and Weber Aqueducts—concrete pipelines extending south and north, respectively, from a bifur-

cation works at the Gateway Tunnel outlet Portal.

The federal government will be repaid for almost all of the project costs. On repayment matters, the Bureau of Reclamation deals with the Weber Basin Water Conservancy District, a public body established under Utah state laws. The district in turn deals with separate legal entities in the project area that include 23 separate towns as well as about 25 water districts and irrigation companies.

In addition to supplying irrigation water, the project will provide 40,000 acre-ft annually for municipal and industrial use and for three permanent military bases. With drainage ditches and diking, 29,000 acres of waterlogged land near the lakefront will be made usable, and 19,000 acres of land now irrigated will be improved.

Included in over-all plans for the project are two small power plants, one along the Gateway Canal and one at Wanship Dam, totaling 5,400 kw capacity. These plants will be capable of producing the energy for the project pumping plants.

During the 1955 fiscal year about $6.5 million was spent on construction. About $13 million is available for 1956 fiscal year work (beginning July 1, 1955), including funds voted by the 1954 session of Congress that were obligated but not expended during the 1955 fiscal year.

Here are details of major units:

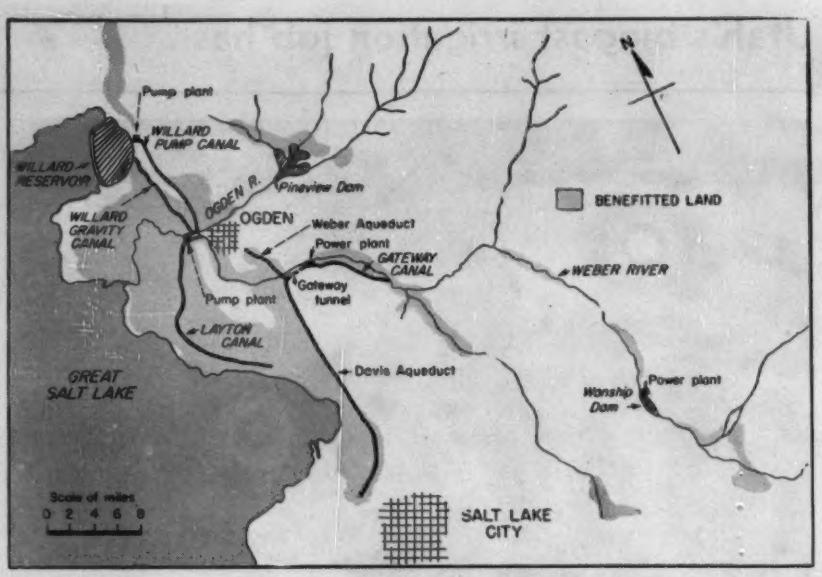
• **Wanship Dam**—A $2.4 million contract for construction of this earthfill dam is held by Utah Construction Co., which had brought the structure about halfway to completion near the end of 1955.

The 155-ft dam will have a rolled earth core totalling some 1,600,000 cu yd.; its upstream and downstream slopes are protected by a sand, gravel and rock fill totalling 1,140,000 cu yd. There is a miscellaneous fill section at the downstream toe totalling 205,000 cu yd. that is made up from cutoff trench excavation and material from other sources. The upstream face is covered with a 76,000 cu yd, 3-ft thickness of riprap.

Outlet tunnel for the dam was constructed first along the right abutment, to carry water of the Weber River during the 1955 construction season. Later, the fill is expected to be high enough to store all but catastrophic floods.

A concrete-lined, chute-type overflow spillway is being built on the right abutment.

Excavation of the impervious material is an elevating loader job, but the sand-gravel-rock fill is excavated by dragline crane. Material is hauled in bottom dump truck with impervious fill being spread in 6-in. layers and compacted by sheepsfoot roller. The sand, gravel and cobble fill is dumped in 2-ft layers and compacted by tractor operations.



PROJECT will irrigate 74,000-acre area on shores of Great Salt Lake and provide water supply for many communities. Initial features making water ready in 1957 are Wanship Dam, Gateway Canal and Tunnel and Weber and Davis Aqueducts.

• **Gateway Tunnel and canal**—First project element completed was the $2.7 million Gateway Tunnel built by Utah Construction Co. First unit to be put under construction, it was finished a year ahead of schedule. The 3.3-mile concrete-lined tunnel has a 9.5-ft horseshoe section.

Most of the Gateway Canal is covered by a $2 million contract held by Morrison-Knudsen Co., Inc. Awarded late in 1954 with 1,000 calendar days allowed for completion, this job is well ahead of schedule, and may well be completed by the end of this year. The contract includes about 7.5 miles of open, concrete-lined canal, 8.3 ft deep with 10 ft bottom width and 1¼ on 1 slopes.

The design calls for a gravel base to be placed under the concrete lining. The contractor is using the same lining machine to place the gravel that places the concrete. Under normal operation gravel is placed on the night shift and concrete placed on the day shift—with lining progress of as much as 1,300 ft a day.

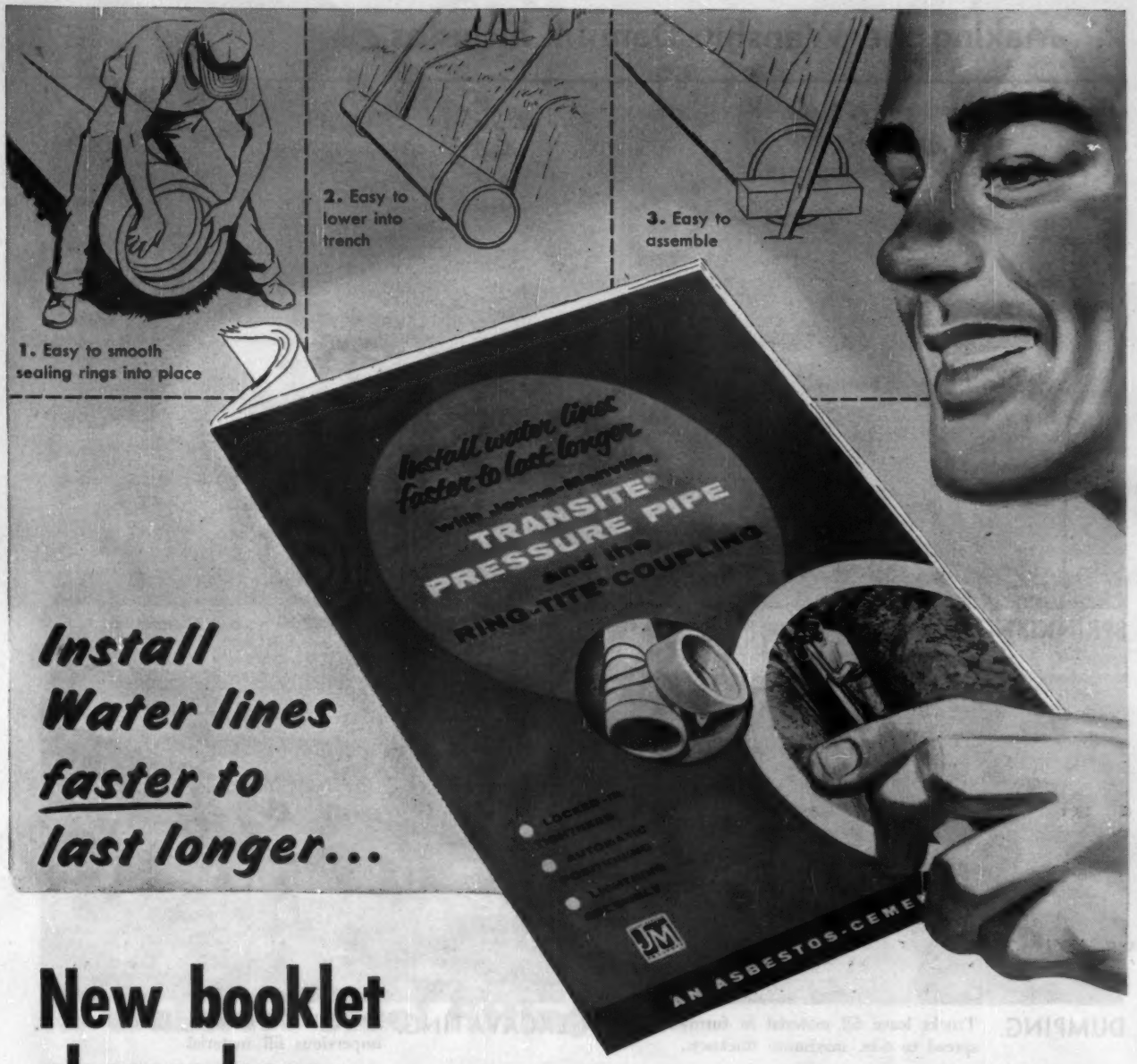
A third contract, for 4,000-ft of canal and the diversion structure, was awarded in mid-1955 to A. S. Horner Construction Co. The diversion works is simply a gated weir placed across the river, with an appropriate headworks structure on the left abutment. This $500,000 contract is expected to be completed in ample time for 1957 water use. The diversion works is some 30 miles down stream from Wanship Dam.

• **Aqueducts**—Near the downstream portal of the Gateway Tunnel is a bifurcation works that forms the start of the Weber and Davis Aqueducts. Weber Aqueduct extends north toward Ogden—a 5-mile long line of concrete pipe ranging from 42 to 48 in. and having 80 cfs capacity. This pipeline is being built under a $800,000 contract by Wheelwright Construction Co.

The Davis Aqueduct, with 355 cfs capacity, extends south toward Salt Lake City for an ultimate length of 23 miles. A $3.9 million contract held by United Concrete Pipe Corp. is under way for 17.6 miles of the total length. Concrete pipe sizes run from 60 to 84 in.

• **Pineview Dam enlargement**—First major contract for second stage of the Weber Basin project was awarded in midsummer of 1955. It calls for raising the height of Pineview Dam, an existing earth-and-rockfill structure built in 1937 on the Ogden River. Contractor under a $1.4 million contract is Utah Construction Co., which also built the original dam. Crest of the dam will be raised some 30 ft. To do this will mean moving the axis downstream 78 ft. And a new gated spillway will be constructed using two radial gates instead of three.

• **Willard Reservoir**—Major feature of the work that is yet to be started is the Willard Reservoir. This in essence is a 31-ft high hydraulic-fill dike on the shores of Great Salt Lake that will form a 215,000 acre-ft reservoir.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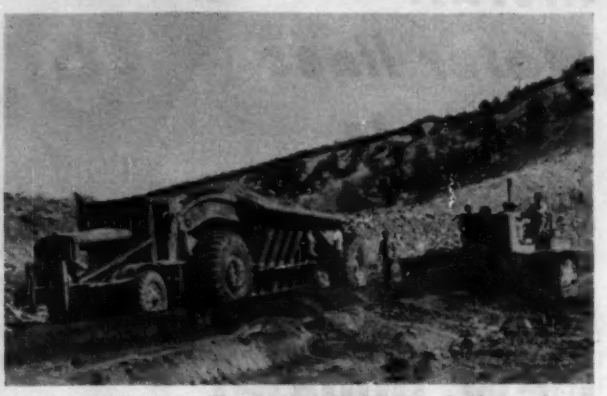
. . . Making the Wanship Dam fill includes . . .

SPRINKLING. Impervious borrow area was sprinkled to bring material near to optimum moisture for best compaction.

DUMPING. Trucks leave fill material in furrows that are spread to 6-in. maximum thickness.



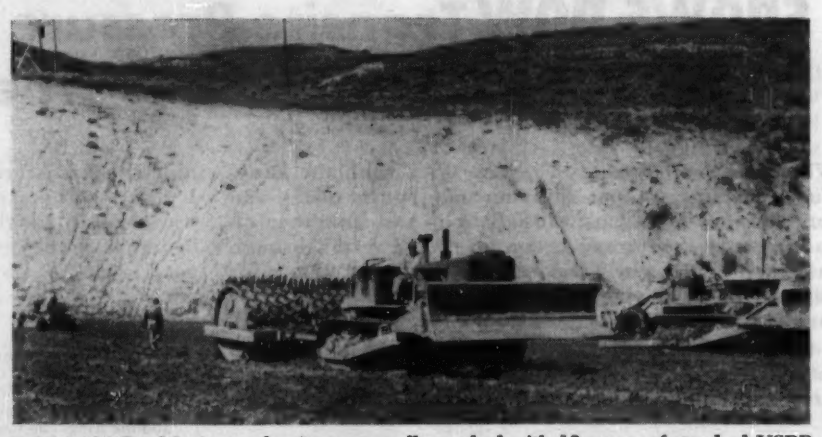
EXCAVATING. Tractor-hauled elevating loader took out impervious fill material.

Design is well along, with a test section of the dike recently completed for foundation studies.

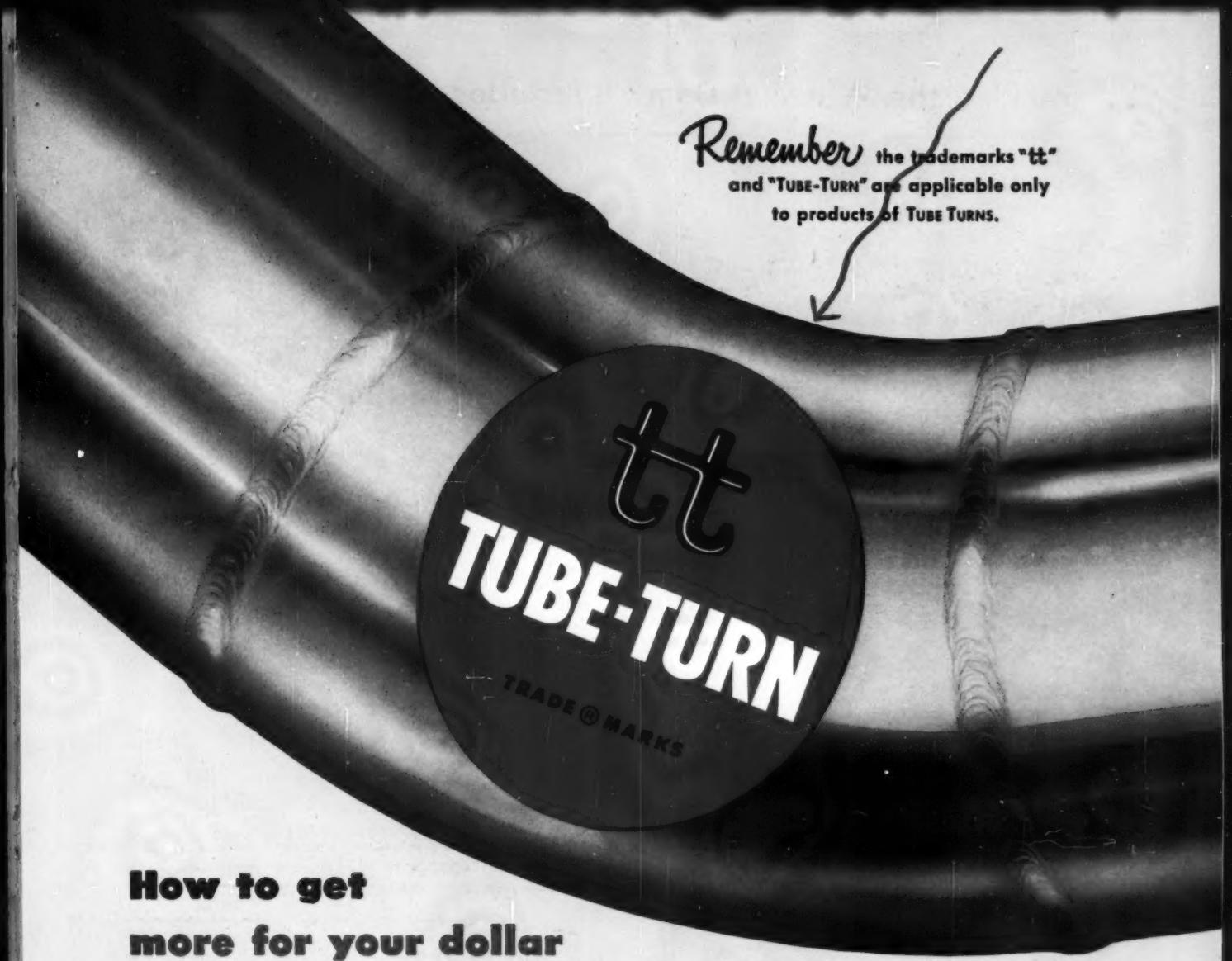
Willard Reservoir will take excess flow from the Weber and Ogden Rivers, below their confluence by means of the Willard Gravity Canal. The water will be stored until needed and lifted by pumping into the Willard Canal for distribution.

• **Layton Canal**—Another major project feature that will be undertaken at some future date is the Layton Canal. This is a 20.4-mile open canal with both lined and unlined sections that will have 260 cfs capacity. Water will be diverted directly out of the river into the canal. Or it can be lifted to the canal by the Layton Pumping Plant with supplies reaching the pumping plant by means of the Willard Pump Canal.

The Weber Basin project is administered by Region IV of the U.S. Bureau of Reclamation, E. O. Larson, regional director. Design is under the direction of L. N. McClellen, USBR chief engineer. Projects manager for the Weber Basin project is Clinton D. Woods and L. R. Dunkley is construction engineer.



ROLLING. Maximum density was usually reached with 12 passes of standard USBR sheepsfoot rollers. Contractor was paid extra for more rolling.



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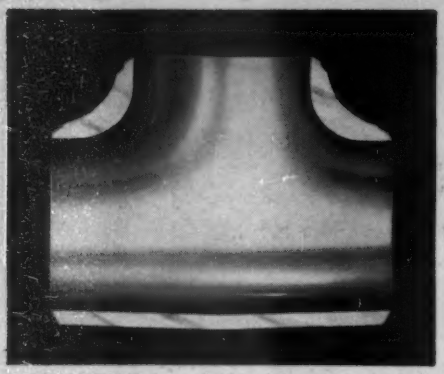

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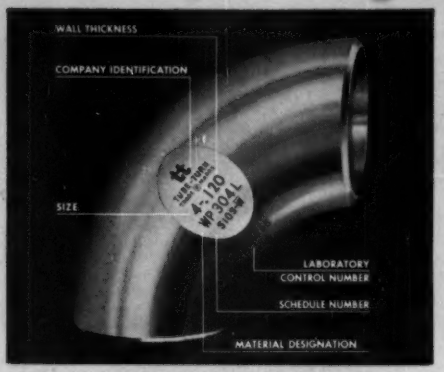

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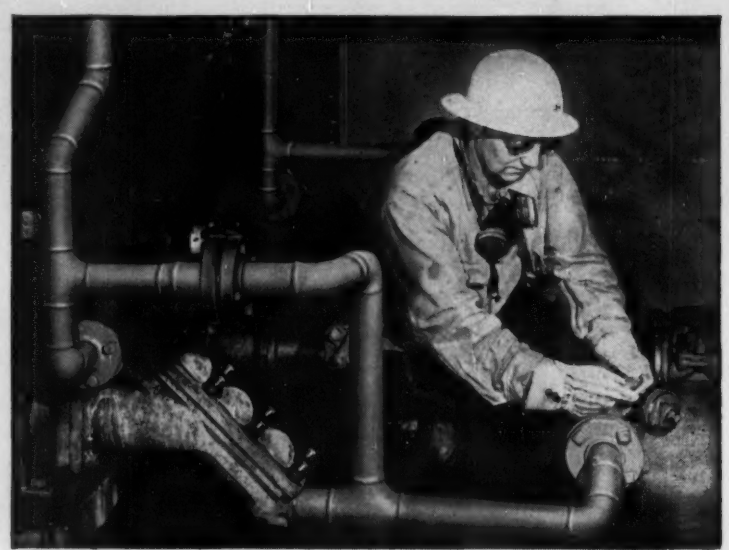

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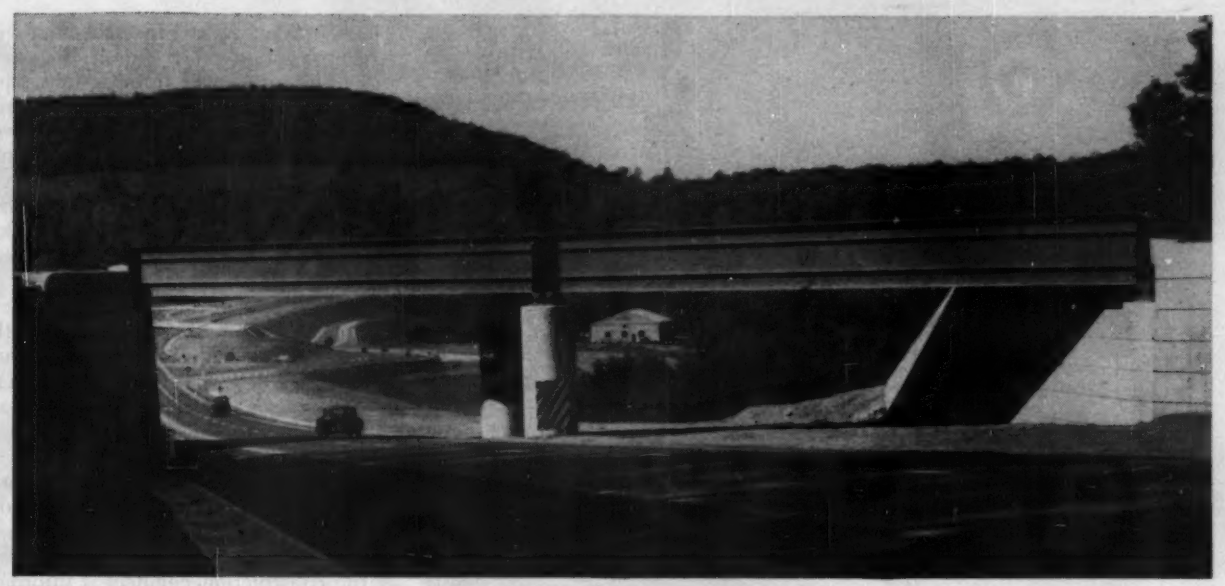

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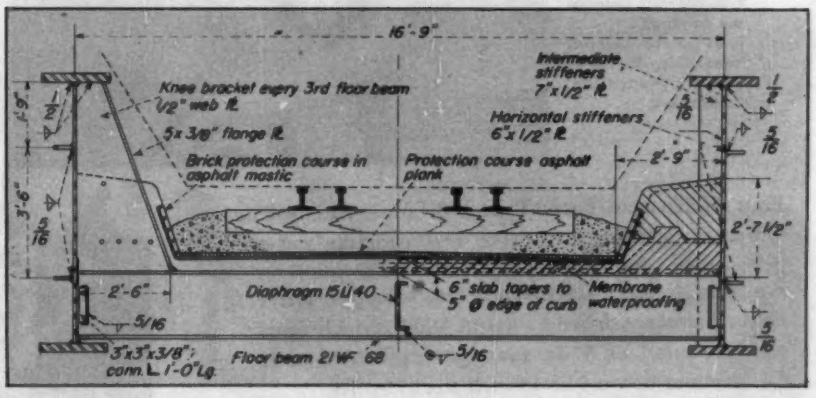
New York State's
First All-Welded Railroad Bridge

Edward J. Ramer
Principal Civil Engineer (Design) New York State Department of Public Works

The New York State Department of Public Works has completed an all-welded railroad bridge, its first of this type, although it has designed and built a large number of welded highway bridges during the past 15 years.

The new bridge is a through-girder single-track grade-separation structure of two 80-ft spans designed for E-60 loading and located on a new four-lane divided bypass of U. S. Route 20 around the village of Cherry Valley, N. Y. It carries a branch line of the Delaware & Hudson Railroad, and represents the culmination of many efforts of E. W. Wendell, deputy chief engineer (retired) of the state's public works department (who had pioneered the state's welded highway bridges) to get a railroad company to accept a welded design.

Despite the fact that many railroad companies use welding to repair and strengthen their bridges, all objected to completely welded new superstructures until P. O. Ferris, assistant general manager and chief engineer of the D & H accepted Mr. Wendell's recommendation on this one. After thorough investigation by the engineering organization of the railroad, Mr. Ferris agreed that the all-welded bridge offered economy in maintenance and operation as well as in construction.



CROSS SECTION of welded girder bridge to carry E-60 railroad loads

Since federal funds were involved, the approval of the Bureau of Public Roads was also obtained.

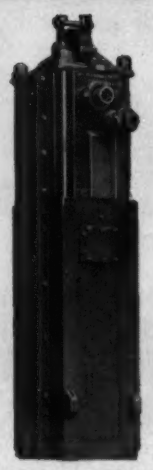
The bridge was designed in accordance with A.R.E.A. specifications and the American Welding Society's specifications for welded highway and railway bridges altered in certain particulars to accord with the state's special specifications developed from its experience with welded highway bridges. A 7 ft 5 in. depth is used for the 80 ft span girders which are made up of an 84 x ⅜-in. web plate and 20-in. wide flange plates varying in thickness from 1¼ to 2¼ in. Longitudinal stiffeners of 6 x ½ in. plate are used on the exterior of the girders, with 7 x ½ in. plates for vertical intermediate stiffeners on the interior. End bearing stiffeners are 9 x ¾ in. plates.

The bridge is 16 ft 9 in. wide center to center of girders requiring floorbeams of 21 in. WF 68 lb sections placed on 3 ft centers. The floorbeams are connected to the girders by 3 x 3 x ⅜-in. angles. Although a saving of about 2 tons of steel could have been effected by elimination of these connection angles and by welding the floorbeams directly to the webs of the floorbeams, the detail was adopted to permit dismantling and re-erection of the bridge with a minimum of effort and cost. In these days of variable railroad traffic conditions it was deemed desirable to be prepared to relocate the structure if it should become necessary. Every third floorbeam is also connected to the top flange of the girders by a bracket serving also as a girder web stiffener

4940 PILES DRIVEN without a hitch!

McKiernan-Terry Hammer driving the first concrete pile at the Terminal de Pasajeros in La Guaira, Venezuela. Frederick Snare Corporation, Contractors.

Four McKiernan-Terry Type S-8 Single-Acting Pile Hammers were used to drive 4940 concrete and steel piles on this important project . . . making a typically perfect McKiernan-Terry record • Three of the hammers drove a total of 4000 18-inch square concrete piles, of 57-ft. average length. A fourth S-8 hammer drove 940 14-inch steel H-piles averaging 53-ft. in length • The report on this job states: "The performance of these hammers was excellent. All piles were driven to 63 tons bearing capacity, no mechanical difficulties were ever experienced with any of the hammers, and no repair parts had to be ordered." • Upon completion of the job, all four McKiernan-Terry Hammers were still in excellent condition, capable of a lot more work without requiring attention • This performance record illustrates why so many contractors choose McKiernan-Terry Pile Hammers for speedy, accurate and economical pile driving. 11 Double-acting hammers, 5 single-acting hammers and 2 extractors are available in the complete McKiernan-Terry line. Write for bulletin giving full data.



Also manufacturers of Coal and Ore Unloaders and Bridges, Grab Buckets, Textile and Special Machinery

McKIERNAN TERRY

McKIERNAN-TERRY CORPORATION, MANUFACTURING ENGINEERS • 80 RICHARDS AVE., DOVER, N. J.
Plants: Harrison, N. J., Dover, N. J.

and made up of a ½-in. web and a ⅜ in. flange plate.

The welds used throughout are primarily fillet welds and vary in size from ⅛ to ¼ in. Double grooved welds are used for web and flange splices on the girders.

All welding was performed by qualified operators using mild steel electrodes with a covering of low hydrogen type. The department qualifies all field welding operators by having them prepare test specimens under the supervision of its construction engineers in accordance with its special specifications. The test specimens are forwarded to the department laboratory together with all pertinent information as to equipment, voltage used, etc., and tested to destruction. The results then go to the deputy chief engineer for review, after which the construction engineer is informed as to whether or not the operator has qualified. A complete list of qualified welders is maintained, with the dates that the operator passed his tests covering fillet and groove welds in various positions. Determinations, based on this list, are made as to any future qualification tests.

The department has established standards for all structural welding using electrodes with coverings low in hydrogen. This type of electrode, it has been established by experience and test, gives weld metal with mechanical and impact properties approaching the properties of stress-relieved weld metal deposited by the usual electrodes.

The weight of this all-welded bridge is 265,000 lb, whereas an all riveted design would have weighed 305,000 lb. This 15% saving in steel also represented a 15% saving in money since the contractor's unit price for the steel was the same for the riveted or welded design. In addition to this saving we have a welded bridge so pleasing in appearance that no similar riveted bridge can approach it.

The Lane Construction Co., Meriden, Conn., was the general contractor for the entire project, and also performed the field erection. The steel was fabricated by the Phoenix Bridge Co., Phoenixville, Pa. Construction at the site was supervised by B. H. Budlong and J. Cronin under the direction of F. W. Donovan, head of the department's district office at Binghamton.

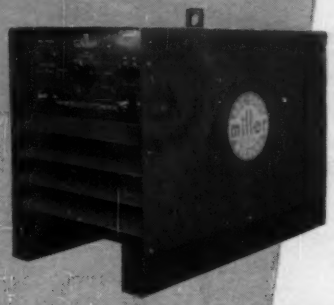
E. W. Wendell, who retired in December, 7954, has been succeeded by C. F. Blanchard as deputy chief engineer in charge of bridge design, New York State Department of Public Works. John W. Johnson is superintendent of the department and Eugene F. Gibbons, chief engineer.

NO SINGLE WELDER WILL DO IT ALL!

THERE'S EXACTLY
THE RIGHT **miller** WELDER
TO MEET EVERY WELDING REQUIREMENT

MILLER SR RECTIFIER TYPE DC ARC WELDERS

Available in 200, 300, 400 and 600 amperes, it is a superior direct current welder using Miller Unitran transformer control and selenium rectifiers for conversion from 3 phase AC line current. Miller SR Welders feature widest possible current range, extreme arc flexibility, maximum electrode deposition rate and highest electrical efficiency.



THE *New* MILLER SRH RECTIFIER TYPE DC ARC WELDER

A new concept in welder design for all DC metalic arc welding. Available in 200, 300 and 400 amperes. It is ruggedly constructed, compact, and is designed to lend itself to stacking for parallel operation or to conserve floor space. It has single range control and is weatherproof.

MILLER ARC WELDERS FOR TUNGSTEN ARC WELDING PROCESS

These Miller Welders feature the patented Miller UNITRAN control circuit which combines the transformer with its own integral flux diverter. This, in conjunction with adequate open circuit voltage, high frequency, balancing resistor and optional controls insures superior uniformity and flexibility throughout the entire welding range. Available in nine models.

THE *New* MILLER MULTI ARC COMBINATION AC-DC WELDER

Available in 14 models, this new Miller Welder provides both AC and DC welding power for applications where both are required. It operates from a single phase power line and is available with high frequency and controls designed especially for inert gas arc and spot welding.

MILLER 100 SERIES HEAVY DUTY INDUSTRIAL TYPE AC WELDERS

Designed for heavy production welding and automatic welding applications. Available in eight models. The 100 Series Welders permit faster welding—as much as 35% faster. Movable coil design and 80 volts O.C.V. produces uniform and better welding characteristics throughout the entire range of the welder.

Write today for complete information on these Miller Welders.

ARC · SPOT miller GENERATORS WELDERS

miller

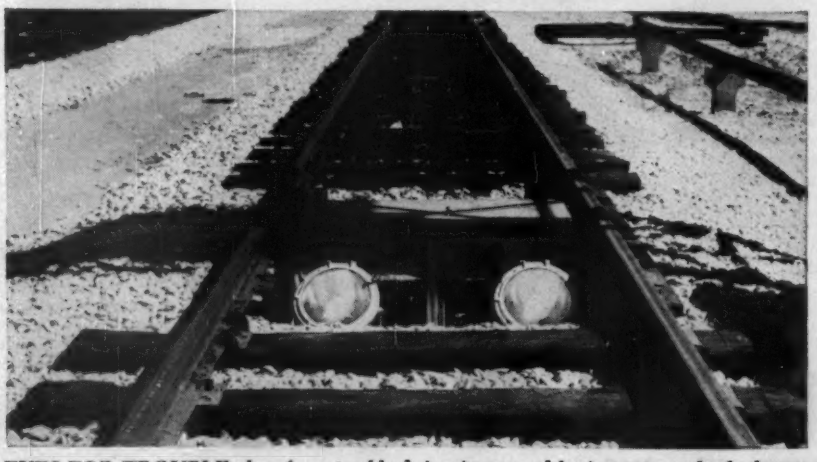
ELECTRIC MANUFACTURING CO., INC.
P.O. Box 798 Appleton, Wisconsin

"... if it's MILLER you know it's the finest..."

Maximum Security for Munitions Handling

ROOM FOR SHIPS that handle dangerous, highly explosive munitions is provided by three 2,200 ft reinforced concrete piers like this one.

ROOM FOR TRAINS that bring in munitions from inland factories is another requisite in new loading terminal. Sodded embankments protect against explosion.



EYES FOR TROUBLE glare from trackbed, in pit manned by inspectors who look over each incoming freight car for any sign of trouble with its dangerous contents.

To prevent any recurrence of Port Chicago and Black Tom disasters at ammunition loading terminals, the Army has developed a new concept of such facilities. Several new installations will be built at spacious locations along the U. S. sea coasts.

The Corps of Engineers has just completed the first of these new facilities—the $23 million Sunny Point terminal, 15 miles south of Wilmington, N. C., on the Cape Fear River. Another is under construction and two more are authorized, with others under consideration.

The second terminal on the priority list is another Atlantic Coast project, at Kings Bay, Ga., almost on the Florida line. Construction was started in June under a $14 million appropriation for one wharf and supporting facilities. Another $12 million will be needed to bring the project up to standard three-wharf size.

Congress has authorized two additional projects, at Potrere Hills, Calif., and Point-aux-Pins, Ala.

These, with possible addition of others, will handle all ammunition loading for the armed forces.

• **Area is critical**—Space is the prime requirement of a safe terminal for ammunition loading.

Under a plan of "quantity safety distances" developed by the military, the required area approximates 20,000 acres. The general plan proposes that civilian population be kept outside the 20,000-acre reservation, beyond the reach of any unforeseen explosion in any part of the terminal or in ships being loaded.

Earth barricades at Sunny Point—up to 16 ft high and 8 ft wide at the top—reduce the quantity safety distances and allow some leeway in area requirements.

• **Not for storage**—A loading terminal is in no sense a depot. Incoming shipments go directly into waiting cargo vessels, with a minimum of holding on the terminal site.

Sunny Point is designed with that objective.

Shipments will come in primarily by rail for delivery to shipside on three wharves 2,200 ft long by 87 ft wide, with three tracks on each wharf.

Inside the terminal area is a classification yard that can handle 780 cars, with a holding yard of 600-car capacity, for temporary detention of cars that must be segregated by type of ammunition for transfer to ships.

Deliveries also can be made by truck. There is a holding area for truck trailers adjacent to each wharf. Each wharf, for example, has its own

new!

ATLAS *Shotmaster* BLASTING MACHINE

The first condenser discharge type blasting machine utilizing a high voltage DC generator directly connected to charge the condensers.

Dependable blasting starts with a dependable blasting machine. And this new Atlas blasting machine is designed to give you every advantage in dependability and safety.

Hand actuated generator operation does away with battery replacements and gives consistent voltage in both hot and cold weather.

Built-in Volt Meter shows actual voltage while the condensers are being charged.

Adequate voltage assured. The condensers cannot discharge into the firing circuit below a predetermined voltage.

No danger of a residual charge in the condensers. With the condensers connected directly to the generator, any residual charge is dissipated quickly.

Simplified operation. The generator is hand operated. The firing trigger may be closed or open during the voltage build-up. Only when the voltmeter needle indicates optimum power can the firing circuit be activated.

Waterproof. The entire unit is sealed and the switch is waterproof. The new Atlas blasting machine is always ready to go . . . under all conditions.

Sturdy, welded steel case is compact and easy to handle. The whole machine weighs only 30 lbs.

Insulated-type terminals. Binding post screws are made of a non-conducting material. Terminals are well separated for maximum safety.

For complete information on this new blasting machine, get in touch with your Atlas representative. He will be glad to give you full details and arrange a demonstration if you wish.

ATLAS

ATLAS EXPLOSIVES

"Everything for Blasting"

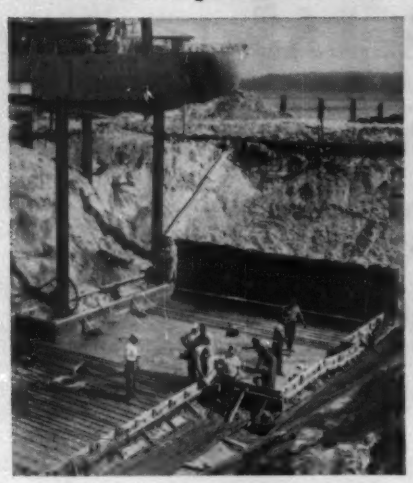
ATLAS POWDER COMPANY,
WILMINGTON 99, DELAWARE

Offices in principal cities

HOW TO HANDLE
WET JOBS

MUNICIPAL POWER
PLANT STRUCTURE
Jacksonville, Fla.

Contractor: George D. Auchter Co.



WELLPOINTS LOWER WATER
OVER 20 FT IN ONE LIFT

WHEN CONFRONTED with the problem of draining ground water to such a depth, most contractors assume that a costly 2-stage wellpoint system will be necessary. Today it is possible to avoid these costs, thanks to the development of improved new high-lift pumps (available only through Griffin).

• On the above job, for example, one such high-lift electric pump lowered the ground water from elevation 101 to elevation 80.7 in a single lift. Photo shows the bone-dry excavation, with men working 20 ft below adjacent St. John's River.

• Another feature of this job was the engineers' expert planning and placement of points, giving contractor trouble-free results in difficult soil—fine sand with layers of muck and hardpan.

GRIFFIN
WELLPOINT CORP.
881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.
In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

truck trailers adjacent to each wharf. Also, a truck-bed-level platform fringes the waterside of each wharf to permit use of forklift trucks for unloading the trailers.

• **New idea**—Sunny Point is the first product of a 1950 directive to the Chief of Engineers. The chief of the Corps was instructed to study coastal areas and select sites for terminals that could comply with the new safety distance requirements. At the same time, the Army Engineers were told to design a modern terminal incorporating all needed safety provisions.

A new type of ammunition loading terminal came out of the design effort. As exemplified by Sunny Point, the new design embodies safety features to minimize hazards to personnel, and facilities inside the terminal area as well as outside.

One such feature is a new type of inspection facility for detecting cars that might cause trouble. Incoming trains pass over and through on inspection pit and platform arrangement at 2 to 3 mph. Trained men study the cars from below, both sides and above for any sign that things are not as they should be.

Any car showing signs of bad order in its cargo is shunted to the "suspect" track to await developments. After a prescribed time, a special crew examines the contents to determine necessary action.

Sodded earth barricades isolate the suspect track. Barriers of the same kind inclose three sides of each spur in the holding yard and divide the receiving and classification yards. Including 18 miles of rail access line, the terminal has 71 miles of track.

• **Ship channels divided** — Separate ingress-egress routes to the three wharves enable vessels to navigate without coming in close contact. Ocean-going ships reach the terminal by a deep-water channel that required 18,000,000 cu yd of dredging. Channels approaching the wharves are 34 ft deep by 300 ft wide; they broaden to 800 ft opposite each wharf for a turning basin.

Each wharf will accommodate two ships normally, or three in an emergency. The terminal can load 10,000,000 lb of ammunition at one time into one ship.

The wharves are identical in design, with decks and piles of reinforced concrete. Total length of piles exceeds 470,000 ft. Specified pile loading was 50 tons, but for safety reasons they were driven to a penetration to take 100 tons.

All structures are designed to resist damage from explosions and fires. Each wharf, for example, has its own firefighting system with pumps, hose and 8-in. mains kept full of water.

The electrical distribution system uses 23,000 v to assure ample power at the wharves, the points farthest from the substation, and to reduce transmission losses. Aluminum wire with steel core was chosen for the system, partly because of its resistance to corrosion in this location.

Other structures at the terminal include administrative and operational buildings, bachelor officer quarters, a fire station, a railroad shop and a crew building. A 6-ft 13.5-mile chain link fence and perimeter road for patrol cars surround the area. Paved roads crisscross the reservation.

• **Personnel**—Construction of Sunny Point was under the direction of the Wilmington District, Corps of Engineers, headed by Col. Raymond L. Hill. The district is part of the South Atlantic Division, under Brig. Gen. Henry J. Hoeffer, Division Engineer. Sunny Point is operated by Army Transportation Corps, under direction of New York Port of Embarkation.

Nine prime contractors built Sunny Point for the Army Engineers. Here they are, with the value of the principal contracts: (1) Wharves and Approach trestles—Diamond Construction Co., Savannah, Ga.; $8,133,100. (2) Utilities—E. B. Towles Construction Co., Wilmington, N. C.; $1,582,312. (3) Electrical distribution—H. G. Bryant Co., Wilmington, N. C.; $227,680. (4) Dredging—McWilliams Dredging Co., New Orleans, La.; $2,644,833. (5) Access railroad—W. A. Smith Co., Houston, Texas; $2,079,946. (6) Site railroad—T. F. Scholes, Inc., Reading, Pa.; $3,156,458. (7) Administrative and industrial facilities—Goode Construction Corp., Charlotte, N. C.; $614,147. (8) Additional dredging—Hill Dredging Corp., Atlantic City, N. J.; $528,678. (9) Roads, storm drainage, dust and erosion control—Boyle Construction Co., Sumter, S. C.; $570,794.

Ice Bridge to be Built On Alaska Supply Road

A bridge of ice will be used to span the Yukon River in Alaska on a winter highway over which supplies will be carried to Distant Early Warning radar line stations in the Arctic this winter.

As soon as the river freezes over at Eagle, timbers will be placed in the ice and water pumped on top of the logs and the river ice to form a 40-in. ice road.

Alaska Freight Lines has the contract to furnish supplies to the radar network.

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BARBERTON, OHIO

Short cuts speed printed-circuit design at Brush Electronics Co.

"3-day job"...done in 3 hours

Brush Electronics Co., a Division of Clevite Corp., Cleveland, Ohio, finds countless uses for photographic materials and techniques in designing more than 700 products.

Take the draftsman working on that printed-circuit diagram, for example. The original practice was to draw such circuits in ink on heavy Bristol board.

Now, the job is done in a fraction of the time by positioning precut circles and lines, with adhesive backing, on a form. This is reproduced on Kodagraph Autopositive Film, a positive copy being obtained directly without a negative step. This reproduction—with dense black photographic lines on a translucent base—is sent to the vendor who makes the printed circuits.

Brush has also found that duplicate tracings, made quickly and economically on roomlight-handling Kodagraph Autopositive Paper or Film, are the key to further savings when drawings must be revised, or vendor prints reproduced. Such duplicates are continually being used in place of originals for reference and print making . . . are protection against possible loss or unavailability of the originals.

And Brush further streamlines drafting and engineering activities with the help of other Kodak materials—uses Kodagraph Contact Fine-Line Paper for revising and combining drawings, and making high-quality offset plates . . . uses Kodalith Film in preparing "pictorial" assembly drawings, reduced-size drawings, handbook pages, graphs. *Sometimes four or five materials are used on one job, for top-quality results and savings at every step.*

To learn the ways Kodagraph and other Kodak reproduction materials can serve you, just mail coupon below, or get in touch with your local blueprinter.

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New booklet is jam-packed with valuable tips on saving drafting time, protecting drawings, getting better prints.

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Gentlemen: Please send me a free copy of your new booklet on Kodagraph Reproduction Materials.

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Kodak

PAVER IN OPERATION on state road project in Iowa.

Pioneer's Paver Lays Asphalt Fast

In field tests this summer, according to the manufacturer, the new Pioneer bituminous paver laid 12-ft mat 1½ in. thick at the rate of 66 ft per minute without leaving tears or pulls. When in continuous operation, the machine spread and pre-compacted bituminous pavement at a reported 250 to 300 tons per hr.

Pioneer credits the machine's speed to a new-design oscillating screed working with a heated, vibratory compactor, a combination providing controlled compaction and uniform density with a minimum of mix segregation.

The paver, dubbed the Vibromatic, has been in the field for a considerable time working under differing specifications involving both gravel and rock mixes for highway and city streets. The machine is now in commercial production.

Key units of the paver are its screed and compactor. The oscillating screed with a toothed strike-off bar and pre-compactor, meters the material and shakes and tamps it into all voids across the width of the bed. A high frequency vibrating compactor, heated across the full width of the mat, follows the screed to iron out the mat surface to uniform density. According to Pioneer, tests made across the width of mat samples have shown no significant variation in specific gravity, indicating far fewer voids than might be expected from a bituminous paver.

The Paver is mounted on crawlers with 86 in. ground contact, and will travel at top speeds of 2.64 mph forward and 1.14 mph reverse. Directional controls are air-actuated hydraulic clutches. From his perch at the control position, the operator is able to see the pointer on the line, the action of the material delivery screws, the entire hopper, the screed and the freshly laid mat.

Independently operated screws control mat thickness up to a 10-in. maximum. A simple screw device, mechanically interconnecting the screed and vibratory compactor adjusts the crown from ¼ in. negative to 2½ in. positive while the machine is at rest or in operation.

To handle high tonnages at high speed, a 4½ ton hopper will handle 10 tons of material, and with added extensions, it will accommodate trucks up to 35 gross tons. The hopper has no sharp corners, facilitating material flow and clean-up operations.

Extension and cut-off attachments are available for addition to either side of the paver unit. The machine will lay bevelled shoulders, or nearly vertical straight edges. Laying adjacent lanes, the vibrating compactor forces the material against the adjoining mat so that joints blend into one integral surface after rolling. The high density straight edged mat reportedly requires less hand work for edging and patching. In field trials, one pass of the light roller frequently was eliminated, and at times, the roller was able to run right up to the paver.

The tractor unit on the paver is a self contained unit, having no interconnecting mechanical drives with the paver, which has hydraulic motors, so the units can be disconnected quickly for maintenance. For travelling, a hydraulic unit lifts the entire paver section, providing 20 in. ground clearance at the end of the compactor.

The standard paver lays a 10-ft mat. Extensions will increase capacity to 14 ft 6 and 12-in. increments. The machine lays a minimum width of 8 ft with cut-off attachments. Seven forward operating speeds ranging from 8.5 fpm to 66 fpm can be selected, and the unit has three forward travelling speeds ranging from .86 to 2.64 mph, and five reverse travelling speeds ranging from 12 fpm to 1.14 mph. Power comes from a 43 hp Continental 6 cyl gasoline engine.

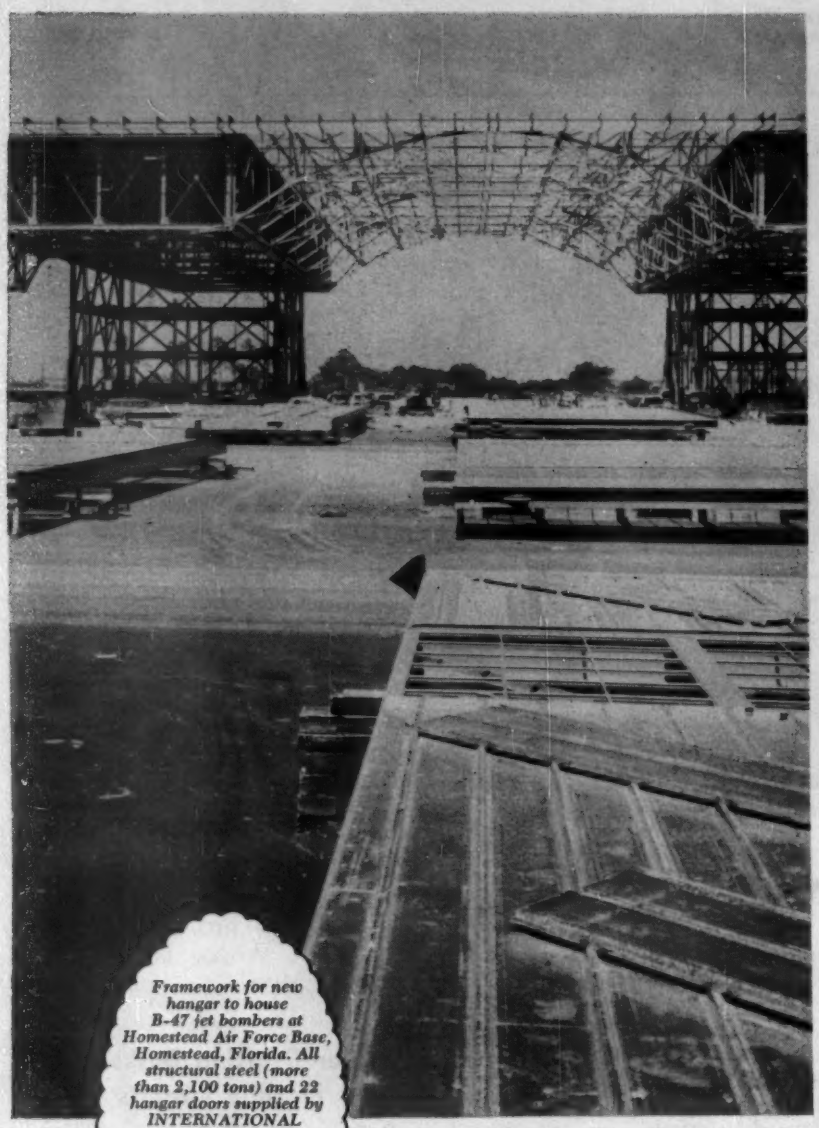
The first units will be available for delivery in early 1956 from Pioneer Engineering Works, Inc., Minneapolis 13, Minn.

Modular Drafting Desks Permit Flexible Layouts

Built around 14 interchangeable, interconnectable basic units, a new line of drafting desks reportedly permits move efficient drafting room planning. The "Modulator" units have ultra-light drawing boards of aluminum faced honeycomb core with scuff and stain resistant linoleum surfaces.

Though one-third the weight of comparable wooden equipment, the boards are rigid and are not subject to warping or dimensional change due to climatic or humidity variations. The boards are mounted on nylon rollers with a counterbalanced height adjustment for conversion from sitting to standing working level. Drawing board sizes range from 26x40 in. to 43½x72 in.

Desks and tables in the modular series are made of steel with bonded plastics tops in neutral colors. The manufacturer has dimensioned the drawers in the drafting and reference tables to provide convenience for storage of flat drawings and drafting instruments. Emeco Corp., Hanover, Pa.



Framework for new hangar to house B-47 jet bombers at Homestead Air Force Base, Homestead, Florida. All structural steel (more than 2,100 tons) and 22 hangar doors supplied by INTERNATIONAL SERVICE.

lots of wing room needed in a "B hive" like this

OVER 81,000 SQUARE FEET, in fact, is the amount of unobstructed floor space required — to accommodate the huge B-47 jet bombers housed in this giant hangar. To provide this vast wide-open area called for more than 2,100 tons of structural steel, much of it specially fabricated to assure adequate supporting strength. Despite this extra-heavy tonnage, International Service spanned the distance to keep construction on schedule . . . supplying all structural steel and all hangar doors as well. Write for your copy of the International Steel Facilities Guide.

See Complete Catalogs in Sweet's Architectural or Industrial Construction Files

INTERNATIONAL SERVICE

INTERNATIONAL STEEL COMPANY

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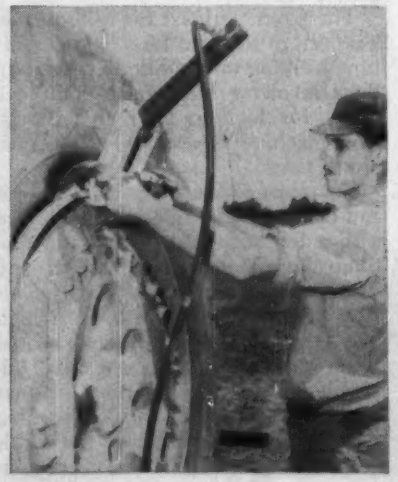
. . . New Products

New Tire Changing Tool Adapted to Tubeless Rims

Designed primarily for new tubeless earthmover tire and rim assemblies, a new portable hydraulic tire changing tool fits all makes and designs of earthmoving rims for either tubeless or conventional tires. Goodyear developed the tool, designated the TO-100, to replace its earlier line of hydraulic bead-breakers that are not adaptable to tubeless tire combinations.

The tool has three parts—frame, ram and pump. After the frame is fixed to the rim by means of steel clamp jaws, the pressure ram assembly is placed with the spade of the ram inserted between the tire and rim. A few strokes on the hydraulic pump force the tire bead away from the flange and loosen it from the bead seat.

A set of six metal spacers are used in pairs to hold the tire away from the flange while the tire is loosened around the rest of the rim until it is entirely free. Goodyear Tire and Rubber Co., Akron, Ohio.



HOW Olathe, Kansas, beat the drought

When pictures were taken, ground was damp because of two days' rain earlier in the week. Each Tournapull, pushed by a crawler-tractor for 170 feet, loaded 14 cubic yards of lumpy, wet, hard-to-handle clay. Time: 45 seconds. Spread over a distance of 70 feet took 20 seconds.

Contractor Yerington builds 160-acre reservoir to supply city of 5,600

Several years after eastern Kansas was swept by the most destructive flood in United States history, the same area was suffering from searing drought.

Streams dried up! Cornfields became parched! Despite stringent rationing, the city of Olathe, Kansas, like many other western U. S. communities, was forced to use the last of the water from its small reservoir and to look about for new sources of supply.

Some water was trucked to Olathe from a private lake. More was brought 15 miles by rail tank cars from Kansas City. After Civilian Defense donated a supply of 8-inch pipe, Olathe's 5,600 residents even used up the water in small pools and ponds.

To prevent a shortage like this from ever occurring again, Olathe officials decided to build a new earth-fill dam and a 160-acre, 50-foot-deep reservoir at a cost of $320,000.

Tournapulls drive to job site

Yerington Construction Co., Parkville, Missouri, contracted to move in the necessary 450,000 cubic yards of clay fill for the dam, plus 40,000 to 50,000 yards of rock riprap, blasted from the spillway and used to face the down-stream side of the dam. Important in the fleet chosen by Yerington for this work were five 16-yard C Tournapulls.

These big rubber-tired scrapers drove under their own power from Yerington's home office to the job site, 5 miles west of Olathe. The 30-mile trip took only 2 hours, despite heavy highway traffic.

5 rigs . . . 600 pay yds. hourly

On the job, Tournapulls worked 40 hours a week, hauling clay to build the top of the dam. Cycles of ¾ to 1 mile, that included short stretches of steep grade, took about 7 minutes. Each machine averaged 8½ loads — delivered about 120 pay yards of wet, lumpy, hard-to-handle clay per 50-minute hour. During normal travel Tournapulls' big rubber tires helped compact fill to the required 92% of modified Proctor.

After comparing Tournapull performance with that of competitive scrapers on the job, Owner Leo D. Yerington reports, *"The Tournapull will outperform any other type of equipment!*

"Tournapull engines are very reliable," he continues. "We have worked 3,700 hours with our 3 older Model C Scrapers and only once have had to pull the head of one of them."

We'd like to show you first-hand why the men from Yerington Construction Company are so pleased with Tournapulls. Give us a call next time you have a break. We'll be glad to put a Tournapull on your job so you can check its performance for yourself. There's a size to fit your needs . . . 7, 16, and 23 heaped yards.

Tournapull, Tournatractor—Trademark Reg. U.S. Pat. Off. P-759-A-b

Some of the equipment on job could not climb this grade up to the borrow pit, but C Tournapulls kept right on moving up and down steep slopes without delay. Superintendent on the job reports, "I think the Tournapull is a very good machine. It has operated satisfactorily here."

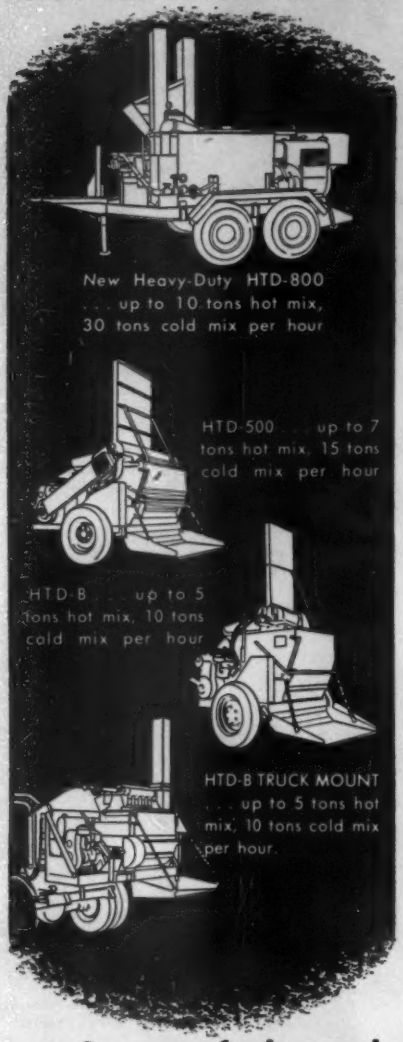
LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

McConnaughay

HOT ASPHALT MIXERS


New Heavy-Duty HTD-800
. . . up to 10 tons hot mix, 30 tons cold mix per hour
HTD-500 . . . up to 7 tons hot mix, 15 tons cold mix per hour
HTD-B . . . up to 5 tons hot mix, 10 tons cold mix per hour
HTD-B TRUCK MOUNT
. . . up to 5 tons hot mix, 10 tons cold mix per hour

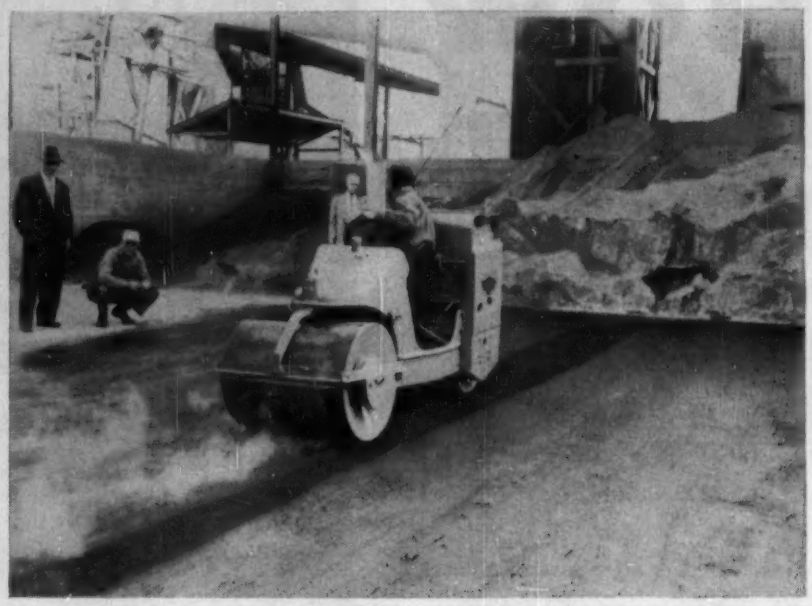
. . . for resurfacing and patching in any season

Designed for economy of operation and fast production, the McConnaughay line of Asphalt Mixers meets every need for most resurfacing as well as all types of pavement patching. Working on location, McConnaughay HTD Mixers provide the *exact amounts* of materials needed and effectively remove both moisture and solvents from bituminous mixtures... positive assurance that patches and resurfaced areas will set up hard. For details and specifications on the mixers above and on the JR and HTD-LP models (not illustrated), write, wire or 'phone...

ASPHALT EQUIPMENT CO., INC.

3929 Buell Drive, Fort Wayne, Indiana

National distributors for
K. E. McConnaughay, Lafayette, Ind.



TANDEM ROLLER weighs only 1,700 lb, smooths pavement like a heavyweight.

Vibrating Rollers Pack a Wallop

Adding wobble to weight adds capacity to compactors, and another manufacturer is introducing a line of vibrating rollers that are claimed to outproduce their more static, rubber-tired kin. First models in the new Essick line of compactors have been in operation on the West Coast since last summer. Easterners will get a chance to look them over during on-the-job demonstrations about the first of February.

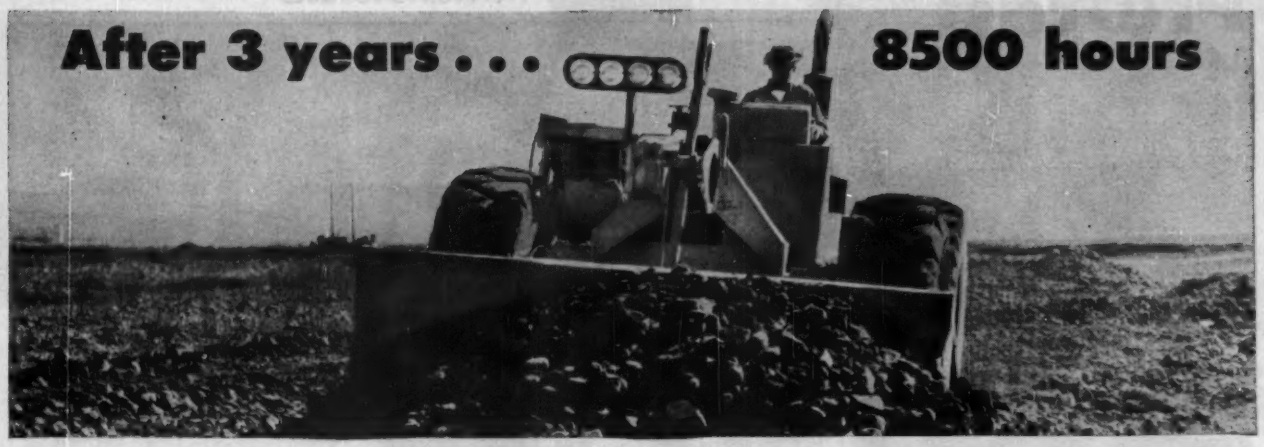
Three Essick vibrating compactor types are now in production: a 3,225-lb 54-in. trailer for use behind tracked vehicles; 32-in., 1,700-lb self-propelled tandem roller; and a 28-in., self-propelled hand-operated single roller. The company also plans to produce a smaller, hand-propelled roller.

The extra wallop supplied by high frequency vibrations makes the relatively lightweight hand-operated and tandem rollers effective in compacting layers of granular materials from 10 to 24 in. thick. According to tests run by the manufacturer, the rollers will give compaction in excess of 95% of the ASHO requirements. The 1½-ton trailer model has proved particularly effective on water-bound base for macadam, and in addition rolls finished surfaces, eliminating the need for a larger, dead-weight roller.

Essick claims that the 1,700-lb tandem gives compaction equivalent to 10 tons of dead weight. The small size and maneuverability of the units permit them to operate around narrow confines of construction jobs, packing fill right up to the edge of walls.

Priced in the $2,400 to $3,300 range, the rollers are available from the Essick Manufacturing Co., 1950 Santa Fe Ave., Los Angeles 21, Calif., and 850 Woodruff Lane, Elizabeth, New Jersey.

HAND OPERATED 28 in. roller smooths asphalt in a demonstration.



Dozing river-bottom rock and gravel within reach of dragline, Tournatractor moves up to 2½ cubic yards per push. Material, hauled by truck to crusher, will ultimately be used as finished aggregate on a new section of U.S. Highway 99E, south of Chico.

Mechanical efficiency 95%

1 original tire still working

How many hours' service do you get from a set of tracks?

Whatever the figure, take a look at the record of a Tournatractor owned by Richter Brothers, Oroville, California.

Their machine is about 3 years old. Three of its original tires were replaced at about 7,000 hours. The fourth is still going strong at 8,520 hours! (See right front tire in above photo.)

Remember, too, that Tournatractor's 19 mph speed enables it to cover 2 to 3 times as much ground as your crawler would in the same number of hours.

Richter Brothers have given their versatile Tournatractor the toughest kind of jobs, too.

On levee job near Corcoran, Tournatractor push-loads electric-control C Tournapulls with 11 pay yards of heavy, wet, lake-bottom gumbo in 30 seconds.

Tire wear small, even in rock

One recent assignment, for example, involved feeding river-bottom rock, sand, and gravel to a dragline. Here, Tournatractor pushed enough material to the loader to maintain production rate of 700 cu. yds. per 7-hour shift. In spare time, it maintained truck haul road. The abrasive and rocky material had little effect on Tournatractor. Its big low-pressure tires rolled *over* the grit instead of grinding *through* it.

On another assignment, Tournatractor helped 4 Tournapulls move 127,500 yds. of lake-bottom gumbo in 35 days for a levee at Corcoran, Calif.

Averages 15 mph job-to-job

Tournatractor also recently leveled 500 acres of farm land and did such highway construction work as push-loading scrapers, dozing, and pulling compactors. All job-to-job moves were made under rig's own power . . . a typical trip, Corcoran to Oroville, Calif. (300 miles), took only 20 hours. In 3 years, the machine has been 95% mechanically efficient, according to the owner. Says William C. Richter, owner also of 7 Tournapulls, "We have very little downtime with LeTourneau-Westinghouse equipment."

Says Operator Earl Sheppard, "I like Tournatractor especially well for dozing, clean-up work, and push-loading. It's fast and easy to operate."

Ask us to show you and your operators what these advantages can mean on your job. Call to arrange a demonstration.

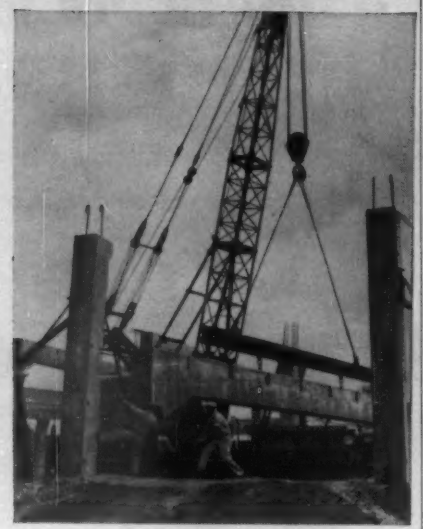
Tournapull—Trademark Reg. U.S. Pat. Off.
Tournatractor—Trademark T-661-S-bw

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

Pre-cast



Secured by four 1¼" Richmond Screw Anchors, this 25 ton girder is lifted into place in first fully pre-cast, prefabricated building in the New England area, designed by Universal Engineering Corporation and built by the David Nassif Company, both of Boston. Placement of the 8-ton column on the left was accomplished with one 1¼" Richmond Screw Anchor imbedded vertically in the column head. Casting of all the pieces necessary for the complete construction of the 51,000 square foot building through production-line assembly of pre-cast walls, panels, girders and beams took only six weeks. In all concrete construction work, Richmond equipment guarantees speed and safety.

All segments of the building, like this 12 ton panel held in secure check by 4-1¼" and 4-¾" Richmond Spider Anchors for lifting and bracing, were cast flat and swung into position by means of frames or I-beams attached to Richmond Anchors which had been cast into the concrete panels. Richmond anchorages with their established safe load strength and absolute reliability are a natural for all such prefabricated concrete assemblies.

For more information and your copy of Richmond's 1955 Catalogue showing the complete line of Richmond products applicable to all types of concrete construction, write: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Ave., Brooklyn 8, N. Y. or 315 South 4th St., St. Joseph, Mo.

TRUCK MOUNTED SCAFFOLD carries a load of lumber with it.

Scaffolds on Wheels Speed High Work

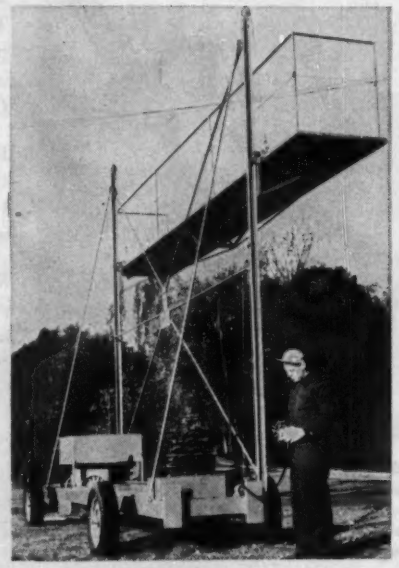
Mobile scaffold towers with self-contained power supplies are cutting scaffolding erection time and reducing ladder climbing on several construction projects on the West Coast. The scaffolds, called Power Towers, combine the functions of an elevator, work platform, material hoist, and portable electric power source.

The original units clamped over a heavy truck chassis and body so that the combination unit could hold about 10 tons of materials within easy reach of the men working on the scaffold. The newest version of the tower, model 100, is built on a trailer and doesn't tie up truck time.

All units have a sufficient reach for work on multiple story structures, models 150 and 250 going up to 40 ft or more. A power table saw rides up and down with the scaffold platform, permitting carpenters to cut sheathing, window frames, or siding with heavier duty saws than would normally be available upstairs.

Gasoline-powered 3½-kw generators mounted on the base of the Power Towers supply 110 v 60 cycle power for the platform motor, the power saw, and electrical accessories.

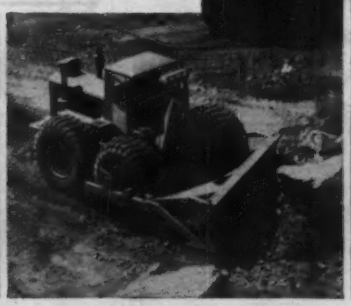
The chassis of the model 100 Power Tower is 18 ft long, and supports a 22-ft scaffold platform. A push on a button rises or lowers the platform, which is supported by cables from an electric power winch. An emergency brake will grab the supporting I-beams in case of cable failure, and will not release until cable tension is restored.



TRAILER-MOUNTED scaffold has 3½ kw generator to provide power for tools and lights. Workman holds remote control panel for winch.

Lift capacity of the smaller model is 800 lbs, with a safety factor of 100%. The larger models, with 5 ft wide platforms ranging in length from 24 to 40 ft, have 1500 and 2500 safe load limits. POWER TOWER CO. 215 W. GALER ST., SEATTLE, WASH.

Front end units all mount on same A-Frame, use same side arms, and down-pressure attachments.



BULLDOZER — 11'4" wide, 3'7" high...carries 2½ cubic yards per pass. Correct blade curvature — result of over a quarter century of experience in dozer building — provides faster digging. Dirt rolls easily, holds well at ends. Blade lifts to 5'4", drop without down-pressure is unlimited.

ANGLEDOZER — 13' wide, 3'6" high — carries 3 cubic yards per pass. Blade can be angled 20° to lead on either side. With electric motor you can tilt either corner of blade 10" up or down with just a touch of an electric switch from the operator's seat. Recommended for extensive side-hill work.

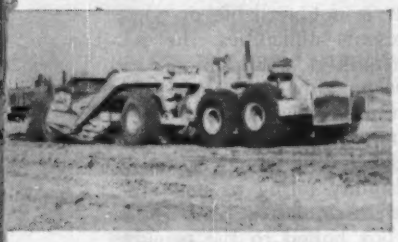
ROOT RAKE — 11'4" wide, 4'6" high. Has 10 removable curved teeth placed 10½" apart for better flow of dirt. Rake penetrates deeply, tears out roots, brush, vines, rock, etc. Lifts 46" above ground for handy stacking. Drop is unlimited. Rake can be removed and stumper attachment mounted in its place.

SNOW PLOW & WING — 12'4" wide, 6'6" high. Plow lifts 5'6" to clear most banks. Divider plate in center of "V" cuts frozen drifts. Rubber tires protect road surface. Speed "blasts" heavy drifts. 9' electric-controlled wing optional. Operator controls plow and wing with push buttons in cab.

Increase your earning power

with this fast, versatile tractor

7 other attachments to handle your pushing, pulling and skidding operations to get more work done at less cost.



PUSH BLOCK — For pusher duty, Tournatractor mounts a massive billet bumper, 3" thick and 16" high, and a heavy, all-steel welded 3'4" x 3'4" push-block. Bumper runs full width of machine...is curved at ends to protect tires.

ROOTER & PCU — 3 sizes of rooters give fast, low-cost breakage of all tough materials. PCU is activated by pair of powerful electric motors. Works with any type of cable-control scraper that can be hitched to Tournatractor drawbar.

Now — put 19 mph speed into all your tractor work. Make money by doing dozing, pushing, and pulling jobs faster than ever before. Save time and money by driving quickly from job to job under your own power. The big 208 hp rubber-tired Tournatractor mounts a LeTourneau-Westinghouse attachment to fit almost any assignment. It can also be adapted to operate most other makes of towed equipment, too. See us for details on performance — price — and delivery.

TREE-PUSHER — Forked 32' boom reaches high on tree for extra leverage. When Tournatractor shoves, boom angle creates down-pressure on tires. As push increases, so does traction. Boom is of bolted construction for easy disassembly.

LOGGING WINCH — Line-pull 43,000 to 80,000 lbs. at 36' to 63' line speed per minute. Pulls logs, snakes pipe, poles, etc. Winch mounts on top, dozer on front for double duty. All electric...controlled by push buttons.

SHEEPSFOOT ROLLER — Has full-oscillating drums, pyramidal alloy steel feet and pads, can be assembled into 2 or 4-drum combinations, with loaded wts. to 26,480 lbs. Giant single roller also available with loaded wt. to 69,360 lbs.

SCRAPER — 4 sizes...10½, 16, 19, 28½ heaped yards. Dig quickly, load well into corners, pack out voids to move more pay yardage per trip. All-welded construction. Can use with any tractor. Priced 9 to 25% under competitive machines.

Tournatractor—Trademark T-757-G-b

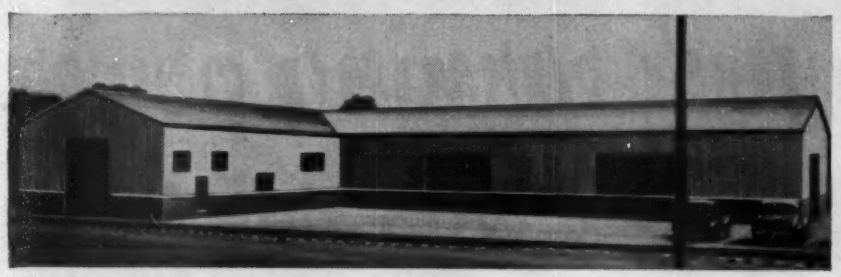
LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

FOR HIGH-SPEED EXPANSION...

AND LOWER BUILDING COSTS...



LURIA STEEL BUILDINGS

BUILD NOW—WITH THE ADVANTAGES OF STANDARDIZATION plus the FLEXIBILITY and ADAPTABILITY of CUSTOM UNITS

SPEED, ECONOMY, PERMANENCE—all part of your expansion program . . . when you build with Luria. For *speed,* Luria's inventory of completely fabricated structural parts shortens delivery time. For *economy,* Luria Buildings provide substantial *initial* savings and *maintenance* savings. For *permanence,* Luria materials surpass the most stringent building regulations.

BUILT TO YOUR INDIVIDUAL REQUIREMENTS. The famed *adaptability* and *flexibility* of Luria structures make possible practically any arrangement and architectural treatment . . . *without sacrificing the economies of standardization.*

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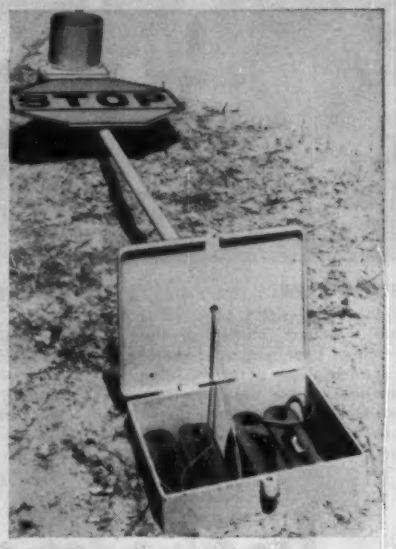


Highway Warning Flasher Powered by Batteries

A battery-powered highway flasher will provide two flashes per second for about a year on one set of four ignition type dry cells. Designed specifically for remote installations where line power is not available or where wiring presents difficulties, the self-contained unit is weatherproof and has a gas vapor tube light source that is said to be virtually inexhaustible.

The aluminum-cased light unit has a standard 8¾" lens in red or amber, with a visibility rating of one mile. Batteries are encased in a weatherproof cast iron box bolted to the concrete foundation block. The signpost is attached to the hinged lid of the battery case, which may be locked to prevent theft or vandalism. NEO-FLASHER MANUFACTURING CO., 3210 VALHALLA DRIVE, BURBANK, CALIF.

Two Manufacturers to Make Beam Deflection Testers

Two manufacturers are producing commercial versions of the Benkelman Beam Deflection Indicator for measuring pavement displacement under slowly moving vehicles. The testing device was developed by the U. S. Bureau of Public Roads for use on test projects.

The devices are similar, consisting of a long lever, one end of which contacts the road under a loaded vehicle while the deflection is recorded by the other end of the lever on a micrometer dial. HOGENTOGLER AND CO., 5218 RIVER ROAD, WASHINGTON 16, D. C. and SOILTEST INC., 4711 W. NORTH AVE., CHICAGO 39, ILL.

Only the new B Tournapull

can give YOU all these advantages

Greater capacity

Accurately rated capacity by SAE standards of 18 cu. yds., struck, or 24 cu. yds., heaped, makes the "B" an outstanding machine for the big yardage jobs.

10-gear speed selection

Ten speeds, plus clutch-brake for fast shifting, means you can haul at higher speeds, complete more haul cycles per hour. Double-clutching and gear clash are eliminated. Low-gear speeds aid in loading, and make it easier to climb grades.

Faster, easier loading

Welded box-beams and channel construction increase bowl strength to withstand stresses of fast loading. New push-block provides direct-line thrust to cutting edge. New scraper hoist-control gives fast pumping action in loose materials. New deflector plate piles heaping loads. Blade angle, improved weight distribution speed loading.

Longer tire life

"B's" 27.00 x 33, 30-ply tires provide ample safety margins. Rated to carry more than capacity loads, they don't overheat, don't wear as do overloaded tires on most self-propelled scrapers of this size.

Power where it's needed

Tournapull's electrical system puts the power right where it's needed with minimum friction loss. Dependable motors, never affected by weather, are operated by dashboard push-buttons. Action is instantaneous. Maintenance is simple.

Shorter turns

"B" maneuvers in closer quarters than any other big self-propelled scraper, turns around non-stop in a space only 35′ wide. With "feather-touch" power-steer, operator controls this rig with no effort . . . maneuvers easily, safely, at high speed.

Less weather delay

Because of "B's" high tractive ability, you start work earlier . . . stop less often due to bad weather . . . add more productive time at end of season. Big, low-pressure tires give good traction in soft going. Differential automatically transfers power to match traction, minimizes wheel slippage. Electric system works accurately and dependably in heat or cold, rain or snow.

Safe, easy operation

Operator rides comfortably on soft, foam-rubber cushioned seat. Pneumatic tires relieve stress and strain on man and machine. Fingertip electric controls work fast, sure, give less end-of-shift fatigue. Good visibility, low center of gravity, big disc-type brakes make Tournapull exceptionally safe to operate.

Interchangeable equipment

Same B Tournapull prime-mover powers an interchangeable 35-ton rear-dump hauler. You get double value from your investment by keeping your 2-wheel tractor working either with shovel rock or scraper dirt. Changeover, using same wheels, brakes, and electric controls, takes only a few hours.

Prototypes of the "B" were put through rugged tests on our new proving grounds. They were then tested on the job by leading contractors, under rugged field conditions. The result is a fully-proved machine. The new LeTourneau-Westinghouse Company backs the new "B" and every component in it.

Tournapull—Trademark Reg. U.S. Pat. Off. BP-883-G-b

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

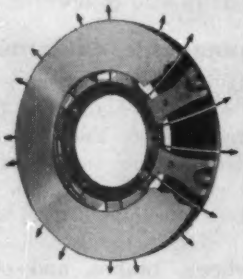
an ACCO product

Tru-Stop Brakes for Construction Equipment

Eimco selects Tru-Stops for New Crawler Tractor

• In designing their new Crawler Tractor, the Eimco Corporation endeavored to provide maximum safety and user convenience. They therefore incorporated TRU-STOP BRAKES—installing a brake on each drive shaft adjacent to the final drive housing, and a third TRU-STOP to brake the bucket operating mechanism.

TRU-STOPS have long been recognized as superior Emergency Brakes for heavy trucks and tractors. Their many advantages are now causing them to be used to brake bucket operating mechanisms, and cable drums on cranes, shovels and other construction equipment.



Longer Lining Life

• The terrific heat generated in braking cuts lining life. TRU-STOPS quickly dissipate this heat. Most of the disc is exposed to the air even during braking. And a cooling jet of air circulates through the disc, prolongs lining life.

These advantages include:

Real Emergency Brakes • On motorized equipment TRU-STOPS are real emergency brakes—not just parking brakes. They serve as auxiliary brakes on long down-grades and can bring the vehicle to a quick stop if service brakes suddenly fail. They prevent accidents by insuring quick positive stops in emergency situations.

Positive Parking Brakes • TRU-STOPS hold safely on steep grades— prevent "parking brake" accidents.

Lower Maintenance Requirements • TRU-STOP design simplifies adjustment or relining, decreases maintenance frequency. In truck or bus applications TRU-STOPS are normally mounted on the drive shaft. Relining or adjustment is a simple job for any mechanic with ordinary tools. It is not necessary to drop the drive shaft.

Specify TRU-STOPS for factory installation on your next piece of equipment.

You will find a great deal of useful information in the booklet, "TRU-STOP Emergency Brakes." Better send for a copy today.

ACCO

Automotive and Aircraft Division

AMERICAN CHAIN & CABLE

601 Stephenson Bldg., Detroit 2

2216 South Garfield Ave., Los Angeles 22 • Bridgeport 2, Conn.

Publications

House windows—Details types and sizes; methods of installation; and appearance and durability factors of steel frame windows. The 27-page booklet also compares the relative performance of sliding, swinging and projected types of windows and how performance is influenced by the materials of which they are made. DETROIT STEEL PRODUCTS CO., 3159 GRIFFIN ST., DETROIT 11, MICH.

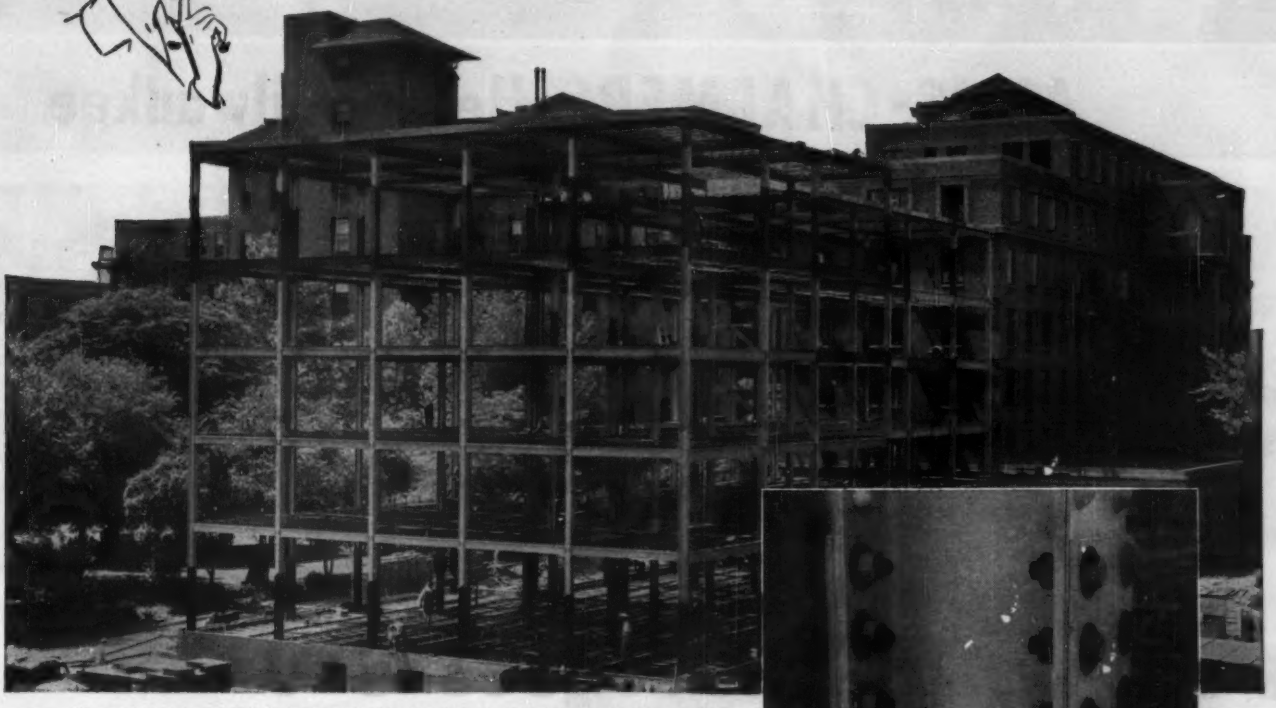
Toll collection and accounting systems—Highway toll systems differ with the type of installation they serve. Remington-Rand has analyzed three representative toll handling facilities in a 142 page booklet covering the New York Thruway System, the New Jersey Turnpike, and a representative General Purpose barrier system for use with bridges, tunnels, etc.

For each type of toll collection system, the booklet analyzes field equipment, division office procedures, central office accounting and auditing, and vehicular classification systems. Reproductions of actual punch cards, accounting records, totalizer reports, and other paper forms illustrate the step by step procedures followed in the large and complex toll installation. REMINGTON-RAND, INC., 315 FOURTH AVE., NEW YORK 10, N. Y.

Insulation, piping, and flooring—A 52-page publication provides engineering data on 11 lines of J-M industrial products, covering insulations, refractories, asbestos cement pipe, synthetic silicates, friction materials, pipe protection materials, and materials for flooring roofing and siding. In addition to product descriptions, the booklet provides tables for calculating heat transmission, heat losses from bare surfaces, and surface resistance of pipes and bare surfaces. Copies available from JOHNS MANVILLE, 22 E. 40TH ST., NEW YORK 16, N. Y.

Air conditioner noise isolation—A four page bulletin presents a step by step procedure for writing adequate vibration control specifications for installing air conditioner equipment. The factors involved in selecting various isolation media are well summarized, and a table classes various isolation media according to vibration frequencies. Specification paragraphs are written out in full, and are selected according to specific job conditions from a special selector chart provided. THE KORFUND CO., INC., 48-23, 32ND PLACE, LONG ISLAND CITY, N. Y.

Sh Sh Sh ... hospital zone!



Above: New wing of Pittsburgh's Shadyside Hospital.-Architect Pressley Dowler, Pittsburgh. Fabricated and erected by Pittsburgh-Des Moines Steel Co.

Right: RB&W high strength bolts give column splice optimum strength.

QUIET steel erection done with RB&W high strength **BOLTS**

PUT PATIENTS through the din of structural steel riveting? Unthinkable! So this new wing of Pittsburgh's Shadyside Hospital was field bolted with RB&W high strength bolts . . . and was all the better for it.

Along with the quiet, the 191 tons of steelwork also went up *fast*. Bolts were installed faster than rivets . . . with two-man teams using impact and holding wrenches instead of usual four-man rivet crews. Hazards of hot rivets were avoided. Joints were stronger, too. Here's why . . .

Bolt strength is greater than rivet strength. When RB&W high strength bolts are tightened almost to yield point, they clamp structural members with a force that develops optimum shear and tensile strength in the joint. RB&W bolts *stay tight* . . . actually fortify the bolt holes with compressive stresses.

RB&W is the largest independent producer of high strength bolts for construction. RB&W bolts have fully controlled quality you can depend on, uniform threads and dimensions . . . have proved themselves on all types of jobs.

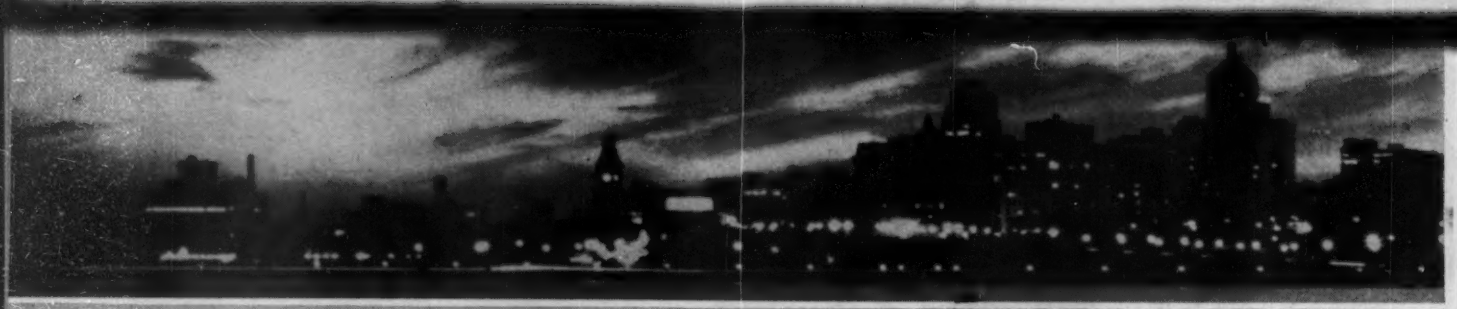
See the RB&W catalog in Sweet's Architectural or Industrial Construction File (2cR/V) or send for "High-Strength Bolts" reprinted from Architectural Record.

Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y.

RB&W

110th year

Plants at: Port Chester N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee, New Orleans, Denver, Seattle. **Distributors** from coast to coast.



ALLIS-CHALMERS Helps Milwaukee

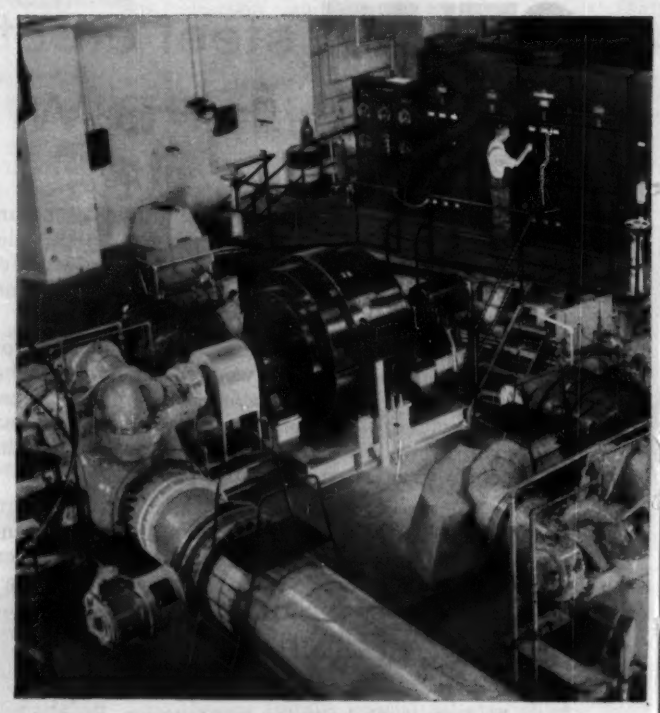
To Keep Pace With Population-Business Growth of Wisconsin's Largest City

IN HUSTLING, BUSTLING MILWAUKEE, water is used at the rate of 175 gallons per day per person. Within the 100-sq-mile metropolitan area of Milwaukee, there are nearly a million people . . . and 2000 thriving manufacturing firms, including world leaders in the production of heavy industrial machinery, beer, motorcycles, tractors, diesel and gasoline engines . . . all using water in increasing amounts.

Milwaukee's water is obtained from Lake Michigan — through an intake over a mile out and 67 feet deep. Consumption climbed from 22 billion gallons in 1924 to 48 billion in 1954. A record month's high — 6¼ billion gallons — was pumped in August 1955.

Allis-Chalmers equipment now operating in Milwaukee's water system includes large vertical pumping engines — dating back as far as 1890 — at the North Point station, and steam and motor-driven units, electrical equipment and valves at the Riverside station, filtration plant and booster stations. In 1955, as part of a continuing modernization and expansion program, two A-C 30-mgd, motor-driven pumps, with controls, substation and butterfly valves, were put into service at the Riverside station.

When YOUR CITY plans expansion or modernization, do as other progressive communities are doing — call the nearest A-C office, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. A-4856



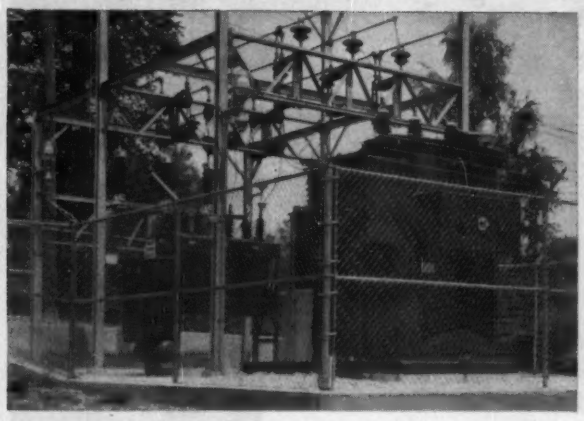
Builders of World's Widest Range of Public Works Equipment

Pumps; motors, Texrope drives, control; switchgear, substations, transformers; butterfly valves; steam turbine-generator units, condensers, hydraulic turbines and generators, engine-generator units; blowers, compressors, vacuum pumps; dryers, screens, mills, sifters; tractors, graders, scrapers, motor wagons, power units.

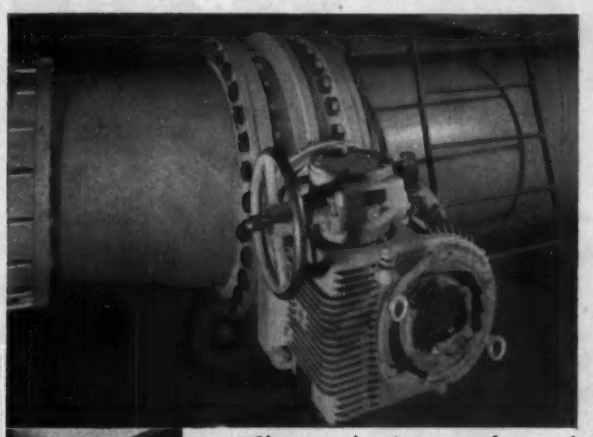
ALLIS-

Milwaukee Journal Photo

Modernize and Expand Water Works



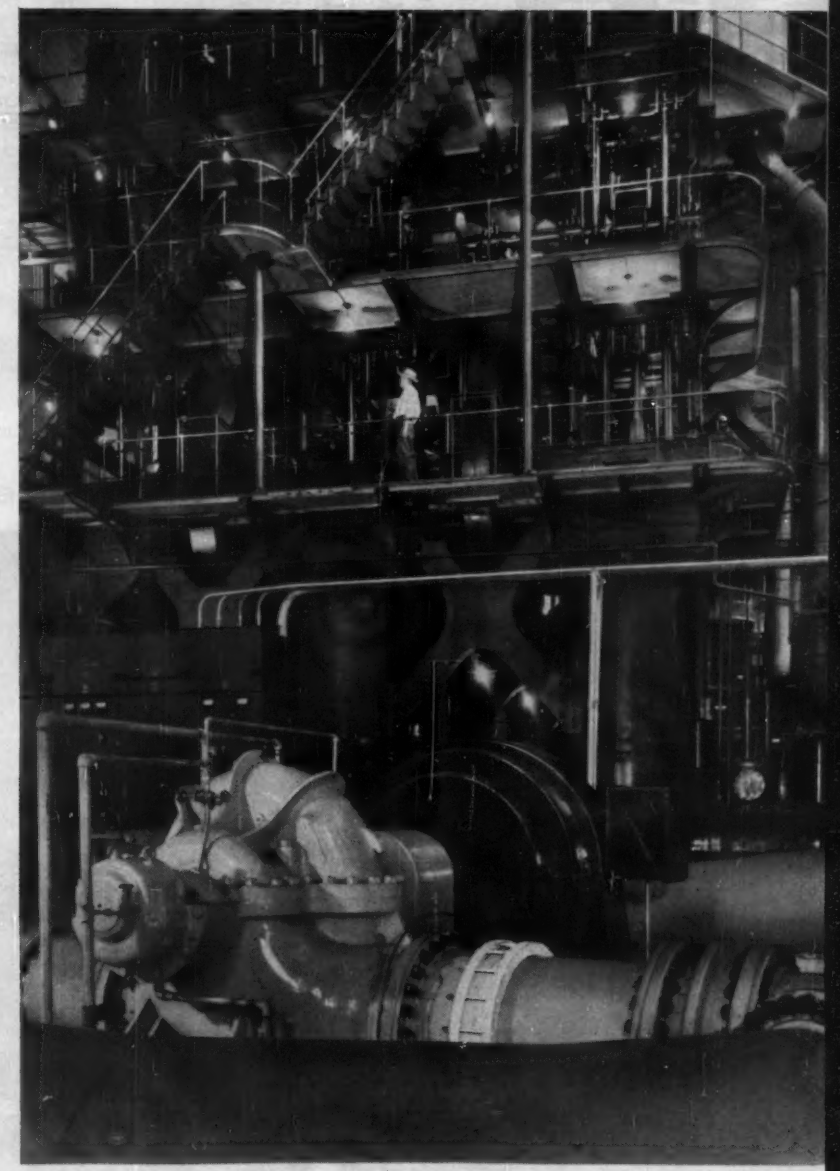
Allis-Chalmers outdoor substation protects and controls the electrical power supply for Milwaukee's Riverside pumping station.



Close-up showing one of several of the latest Allis-Chalmers butterfly valves installed at the Riverside station. A-C builds many designs of valves, including units conforming to American Water Works Standards.

Two new Allis-Chalmers 30-mgd pumps and their 2000-hp synchronous motors and controls were fitted into space formerly occupied by one 30-year-old, 15-mgd vertical pumping engine.

Texrope is an Allis-Chalmers trademark.



View of Riverside station installation dramatizes progress in pump design in the past 30 years. Towering pumping engine in background was record setter in 1924 and is still going strong. But at best it pumps only two-thirds of the water handled by compact new A-C pump in foreground.

CHALMERS

A-C ALLIS-CHALMERS

OÖLITIC LIMESTONE PREDRAINED AGAIN BY MORETRENCH WELLPOINTS

This is a sewer in Hollywood, Fla., ten to twelve feet deep with water three feet from the surface. Material —Miami Oölite—a soft rock formation.

Several contractors had work on this project. Most thought the use of wellpoints in this material "impossible"—"uneconomical". One contractor, Cleary Bros. Const. Co., of West Palm Beach, decided to try them. Results?

a bone-dry ditch

100′ per day progress

no sheeting—no gravel base

innumerable savings

By contrast, *average progress on the other contracts was approximately 50′ per day.*

Does it pay to predrain with MORETRENCH? You bet. Even in oölite!

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generators, engine-generator units, blowers, compressors, vacuum pumps, dryers, screens, mills, sifters, tractors, graders, scrapers, motor wagons, power units.

International

COYOTE BLASTING technique is used on dam under supervision of U. S. engineers.

Work on Bhakra Dam Forges Ahead

Thirty-seven U. S. consultant engineers headed by M. H. Slocum are assisting Indian technicians in the coyote method of blasting rock for excavation at the Bhakra Nangal dam site and the hydraulic sluicing for removal of the muck. Coyote blasting involves the digging of a tunnel several feet in diameter and loading it with large quantities of explosives.

Two more U. S. specialists are on the Directorate of Inspection and Control while the Designs Section has the assistance of another American. The Bhakra Board also employs seven Americans under the designation Short Term Specialists.

But according to Slocum the number of engineers engaged on the job, both Indian and foreign, is too small. Further, the American engineers working on the dam site will be reduced within a year to 35.

Now completed are the concrete manufacturing, cooling and batching plants; the trestles to carry rail lines; and a 5000 kw steam plant, two 500 kw diesel sets and a diesel power house to provide power at the site. Power is also being supplied by one of the two powerhouses situated on the Nangal Hydel Canal.

There still is no official date given for completion of the whole project. However, to date, both upstream and downstream cofferdams are finished.

The upstream cofferdam which has been built to a height of 215 ft, is probably the highest that has been constructed in India under such conditions. It was necessary to go about 20 ft deeper than originally estimated for rock foundation and the height of the cofferdam is now 45 ft higher than originally planned. However, construction was completed on schedule this summer.

The downstream cofferdam also required a revision of estimates because the main site of construction operations has been protected from floods.

A total of 1.3 million cu yd of rock has been excavated and final trimming around the abutment is completed. In that portion of the river where the main dam is to be erected, rock has been reached in a number of places. The same is true of the spillway section.

Concreting work on the 680-foot Bhakra Dam started on schedule last month with Prime Minister Jawaharlal Nehru pouring the first bucket personally. Dam authorities say that concrete will now be poured continuously for 3½ years at a rate of 400 tons per hour. With a height of 680 ft and foundation width of 1310 ft, the result will be the biggest straight gravity dam in the world.

It will impound the waters of the Sutlej River into a lake 56 miles long and 38,000 acres in area. The water will irrigate an area of six million

COMMENT
from the
BUTLER ENGINEER

On ancient history . . . and planning big futures

Interesting historical items: in Baltimore a Butler customer doing an excavating job opened up a perfect maze of old tunnels. No one seems to know when they were built or what for . . . And in constructing the new Brooklyn Dry Dock they ran into a slew of mahogany logs 50 to 60 feet under water. They're estimated to be 70 or 80 years old. Don't ask me how they got there.

•

Despite this country's enormous productivity we still build too small. We're still plagued with steel and cement shortages . . . our new hospitals are overcrowded almost as soon as they're built. New schools? Same thing. New airports? Same thing. Moral: Don't let it happen to you when you build your Ready Mix Plant. Don't approach the problem with "Can we do with smaller equipment?" Look ahead. Analyze your market today and for the years to come. And even then "up" your thinking!

Expansion of an existing plant is expensive. Build your "expansion" in at the start.

Another good reason for building big: it keeps out competition. A prospective competitor looks over your market, sees your plant and says, "These boys must really dominate this area. Look at the size of their plant. We'd better not try to buck them!"

That's not theory, it's fact. Many of our customers have given actual case histories.

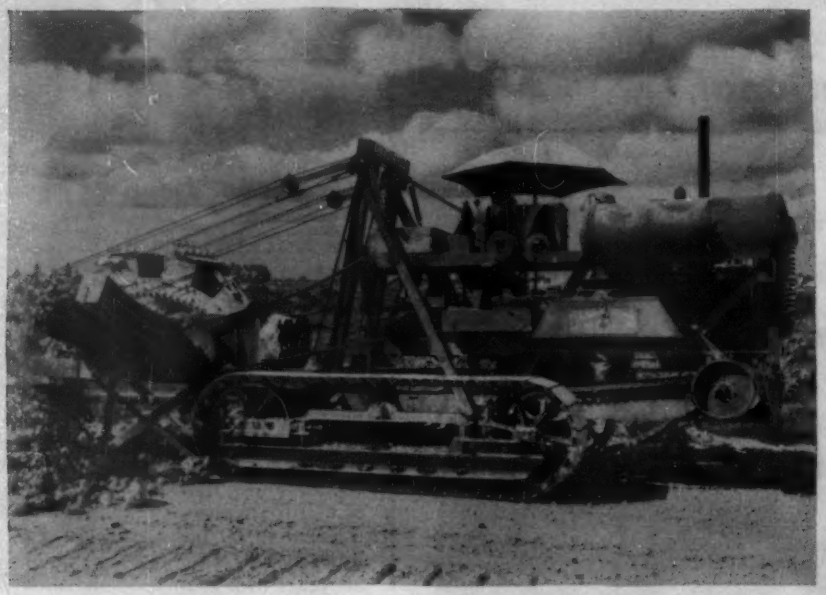
•

Here's something else that pays off handsomely: call in the Butler Engineer early in your planning for a Ready Mix or Concrete Products Plant. Give him time to study and plan. It will pay.

Now I'll get off the pulpit.

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN



Cleveland "140" *halves* 90-day time limit... digs 44,500 feet Florida coral rock in 45 days

Under contract to dig over 8 miles of water line trenches within 90 days, C.B.S. Excavators of Miami finished the job in just half that time using a fast-moving Cleveland "140" Trencher.

The "140" cut trench through solid coral rock for over 40,000 feet of lines in Miami's Westview Homes Subdivision and for the mile-long main connecting the system to the water plant. Trench for the 6-, 8-, 10- and 12-inch pipe was 20 inches wide and 42 inches deep. In addition to the extensive coral rock, the trenching operation was further complicated by seepage of water into the partially-dug trench in some areas of the subdivision.

"No other machine can match it," owner P. F. Chambers says of his Cleveland "140". "For its size this machine can do more trenching than any other. We use the same machine for digging utilities lines and house footings. It really does a fine job of cutting to grade."

Your local distributor will show you how Clevelands do more—for less

THE CLEVELAND TRENCHER COMPANY • 20100 St. Clair Ave., Cleveland 17, Ohio

CLEVELAND

acres and generate 365,000 kw of electricity. It is hoped to transform the economy of four Indian states by this source of power and irrigation.

Amount spent so far on the job is said to be $204 million. Final total estimate may be around $350 million.

Sweden Plans Construction Of Two Atomic Power Plants

Sweden is planning to build two atomic power plants. One will be a heating plant with an effect of 75,000 kw, to be finished in 1960; the other will be an electric power plant of 100,000 kw to be finished in 1962 or 1963.

Both plants will be a joint project of Sweden's Board of Waterfalls, the Atomic Energy Corp. and the Asea Electric Co. The heating plant will be located near the Asea factories in Vassteras, some 60 mi. from Stockholm. The power plant will be located either in Central or Southern Sweden, and will be underground.

Planning is expected to be finished by summer of 1956 and the proposal will be presented to the Swedish parliament in autumn of that year. Cost is expected to be about $40 million.

No choice of reactor type has been made yet, but indications are that natural uranium with heavy water as the moderator will be used.

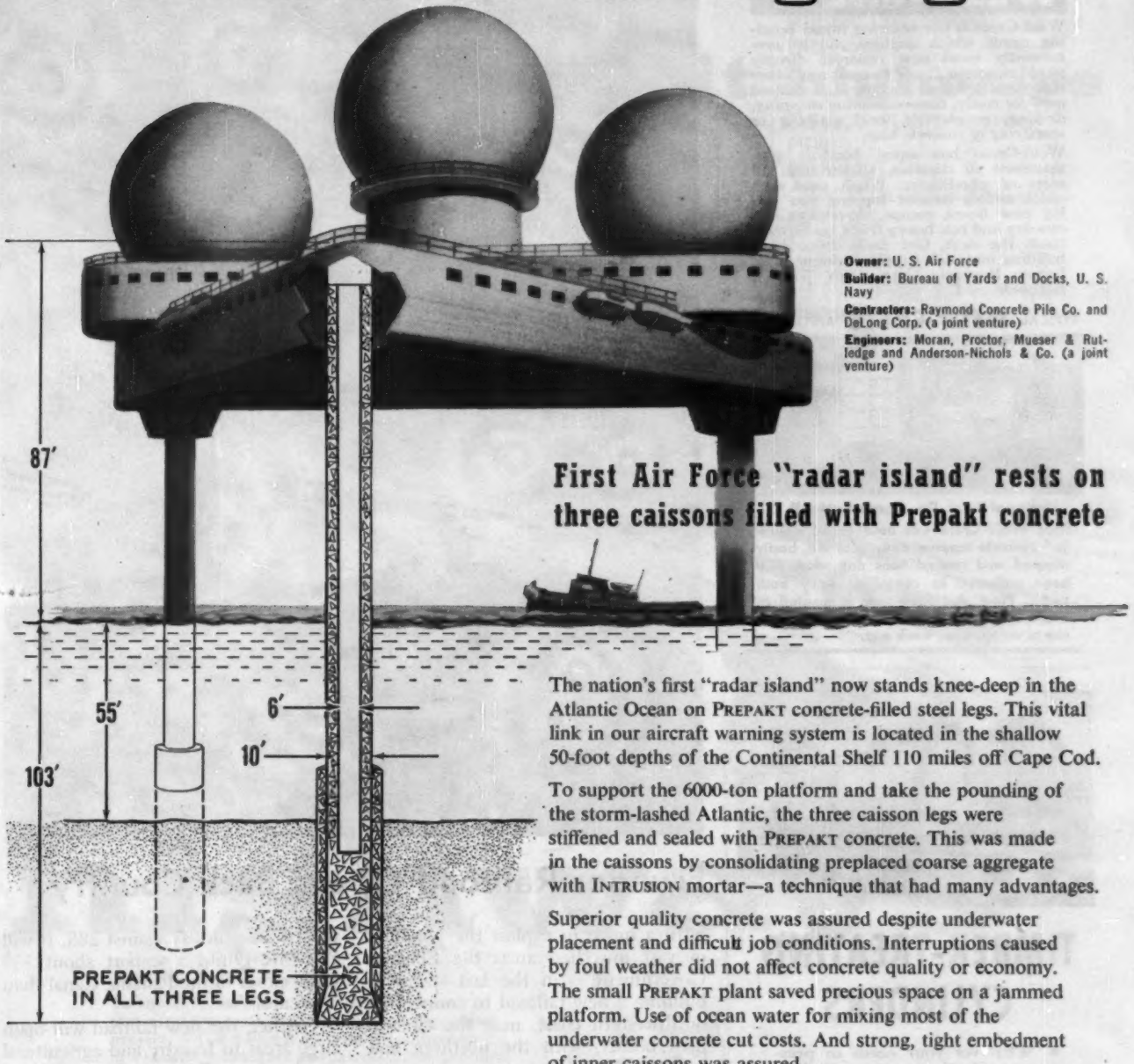
Housing Project Set for Island in the St. Lawrence

In the St. Lawrence River about four miles above the center of Montreal and offshore from the suburban municipality of Verdun lies Nun's Island. For two centuries it has been a peaceful bit of untouched rural scenery, occupied only by a Roman Catholic convent and used principally for farming and cattle grazing.

Long the envy of real estate interests, the island has at last been sold to a group of Montreal financiers for an undisclosed sum. This group, through the Quebec Homes and Mortgage Corporation, plans to build 4,000 housing units on the island as soon as access facilities are available.

Access to the island is to be provided by a new bridge which the federal government has stated will be built across the river. The promoters promised that the housing will be "some of North America's most modern" and they have offered the convent's nuns permanent possession of the buildings which they have occupied for so long.

a nation's sentinel stands on strong legs



Owner: U. S. Air Force
Builder: Bureau of Yards and Docks, U. S. Navy
Contractors: Raymond Concrete Pile Co. and DeLong Corp. (a joint venture)
Engineers: Moran, Proctor, Mueser & Rutledge and Anderson-Nichols & Co. (a joint venture)

First Air Force "radar island" rests on three caissons filled with Prepakt concrete

The nation's first "radar island" now stands knee-deep in the Atlantic Ocean on PREPAKT concrete-filled steel legs. This vital link in our aircraft warning system is located in the shallow 50-foot depths of the Continental Shelf 110 miles off Cape Cod.

To support the 6000-ton platform and take the pounding of the storm-lashed Atlantic, the three caisson legs were stiffened and sealed with PREPAKT concrete. This was made in the caissons by consolidating preplaced coarse aggregate with INTRUSION mortar—a technique that had many advantages.

Superior quality concrete was assured despite underwater placement and difficult job conditions. Interruptions caused by foul weather did not affect concrete quality or economy. The small PREPAKT plant saved precious space on a jammed platform. Use of ocean water for mixing most of the underwater concrete cut costs. And strong, tight embedment of inner caissons was assured.

The cost-saving flexibility of INTRUSION-PREPAKT methods simplified this complex job and contributed to its successful completion.

Modern minuteman with concrete reinforced legs—first man-made island will permit Air Force radar crews to alert U. S. Coast against surprise air attack. This "Texas Tower" type unit is supported by three PREPAKT concrete reinforced legs anchored into sand on Georges Bank.

Prepakt maintains a complete field construction organization plus an engineering service, and functions as prime or subcontractor. For further information, write: Intrusion-Prepakt, Inc., Room 779-G, Union Commerce Building, Cleveland.

Intrusion and *Prepakt* are trade marks of Intrusion-Prepakt, Inc., whose methods and materials are covered by U. S. Patents Nos. 2313110, 2655004, 2434302 and others, also patents pending.

CONTRACTORS PREPAKT ENGINEERS

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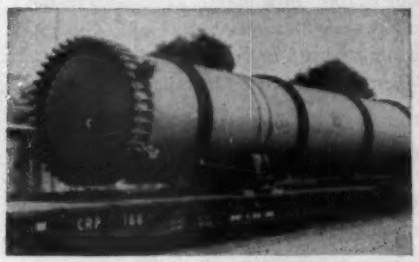
Weld-Crete has equal bonding permanence all climates, all surfaces, all sorts of conditions. When used with quick setting cement topping you can lay new floors, ramps, driveways, etc. one day and run heavy truck traffic over them the next. Get facts from your building materials supply dealer or write Larsen Products Corp., Box 5756-I, Bethesda, Md.

TYPICAL WELD-CRETE APPLICATION

National Brick Co., Terra Cotta, D.C.

Here Weld-Crete was used to bond new ¾" concrete topping directly to old, badly chipped and spalled floor slab which had been subjected to ceaseless heavy truck traffic. Plant shut-down time eliminated as Weld-Crete enabled National's own mechanics to do job over week end.



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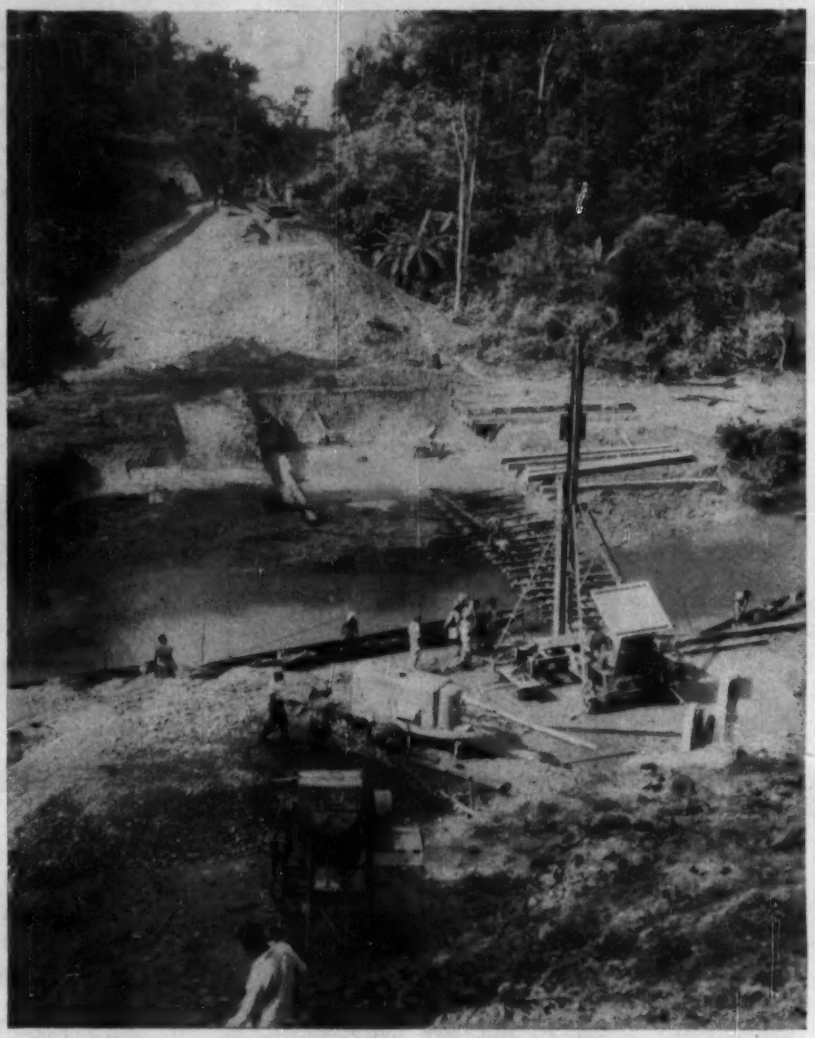

Ecuador Railroad Opens Back Country

In a move to exploit the potential of vast unsettled areas the Ecuador Government is in the last stages of building a new railroad to connect its northwestern coast, near the Colombian border, with the northern and long-settled Andes region.

A number of short-haul railroads, mostly in the coastal regions have been long operating in Ecuador, but only one other line connecting the Andean regions with the coast now exists. This is a 288-mi narrow gauge railroad between Quito, the capital, and Guayaquil, the nation's largest seaport.

The new railroad nearing completion between Quito and the northern seaport of San Lorenzo is, in effect, a northern extension of the Quayaquil-Quito line. However, since its termination is at a seaport, it will give Quito and all of northern Ecuador a shorter freight haul to and from the coast—232 miles as against 288. It will also give Quito a seaport about 350 miles closer to the Panama Canal than Guayaquil.

Further, the new railroad will open large areas to forestry and agricultural development. Between the Andes and the coast the topography varies from barren mountains and large, potentially productive valleys to dense jungle and savannahs. In between is a rolling to hilly landscape, much of it densely forested.

The new through route follows the Pan American Highway north to Ibarra, 94 miles from Quito, then cuts northwest through the mountains to San Lorenzo. For more than half its length between Ibarra and San Lorenzo it follows the Mira River.

The section between Quito and a village 38 miles beyond Ibarra is relatively old. Work started in 1914 and proceeded slowly over a period of

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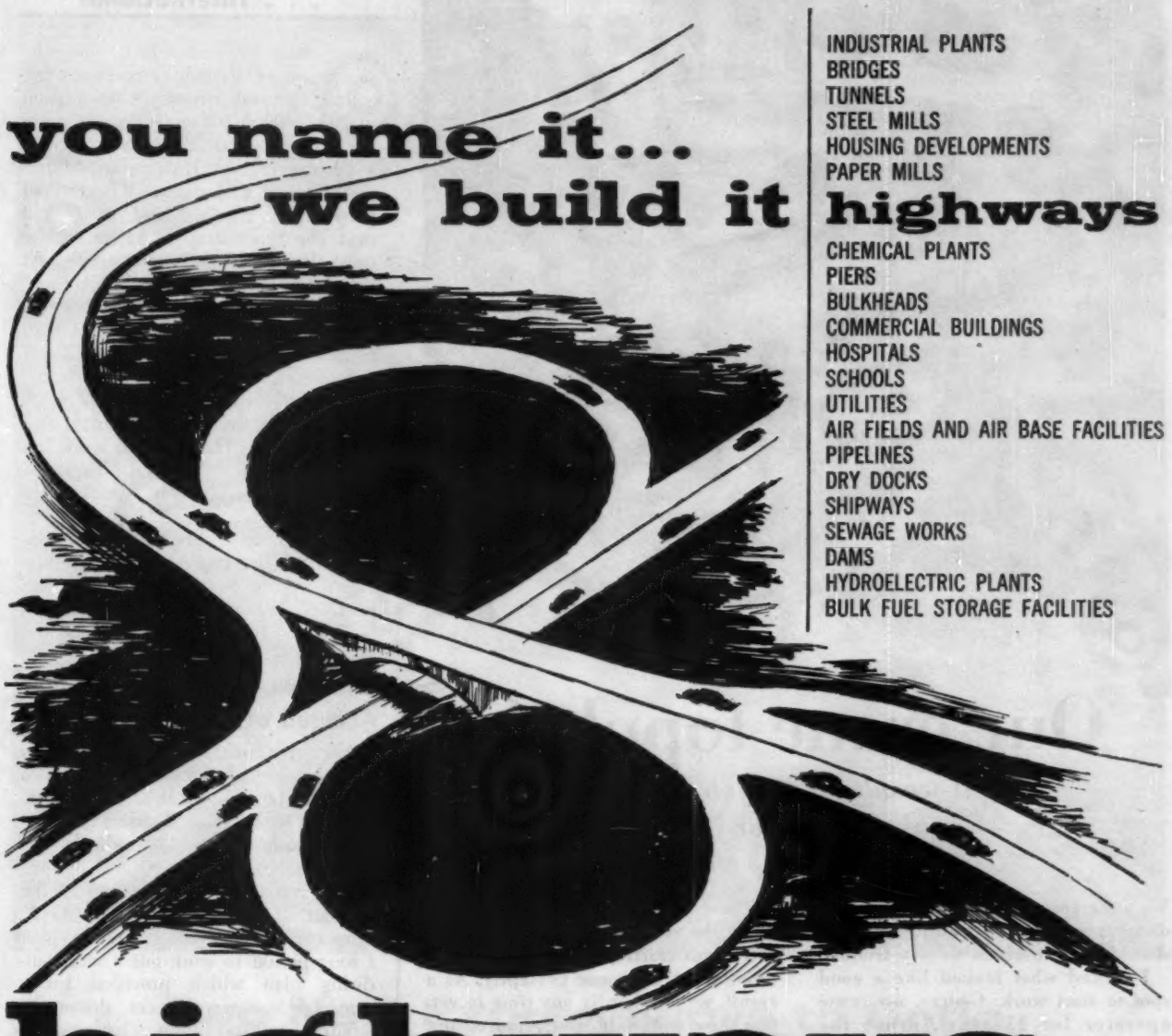

highways

To those "usual" and "unusual" problems that can be expected on any major construction project, M-C & S brings a unique combination of versatile techniques and talents... the product of long and diversified experience as specialists in every type of construction... marine, heavy, chemical, building and industrial.

In the construction of highways alone, M-C & S projects recently completed or currently underway include:

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- Binghamton, New York, Expressway, Section
- Windsor, Connecticut, Expressway, Section
- New York State Highway at Syracuse
- Quincy, Massachusetts, Expressway, Section

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Our crane toppled...

but it wasn't off the job for long —thanks to Hartford service!

(Based on Company File #HM-54-2869)

We were going to dredge for a small dam at a private pond. The job shouldn't have given us any trouble.

I picked what looked like a good spot to start work. George, my crane operator for 15 years, drove the machine down the slight slope.

He locked his brakes and was changing gears when the banking gave way. The crane dipped onto one track and toppled over! Somehow, George managed to scramble out safely.

There was a phone in the gas station down the road, so we put in a quick call to our Hartford Agent. He had an adjuster on the scene promptly. As a result, we lost hardly any time in getting the crane hauled out, repaired and back to our dredging job.

The bills? Our costs for salvage, new parts and labor came to $3,062.67. Under our Contractors' Equipment policy, the Hartford Fire Insurance Company paid them all!

When one of your machines is knocked out of commission, *action* is what you want.

And Hartford acts fast! Gets a man out to you promptly. Helps you get your equipment back on the job in as short a time as possible.

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more than 20 years. But, with the sharp rise of Ecuador's revenues following the war a contract was signed in 1952 with two French firms, Comptois International D'Achats et Ventes a l'Etranger and Enterprises Metropolitaines et Coloniales. The task of preparing a roadbed and laying rail over the remaining 94 miles to the coast then proceeded more rapidly. At times, the contractors had three thousand men on the job. By last February they had built 11 bridges, bored 10 tunnels, and laid down 65 miles of rails.

Today, less than 40 miles of track remain to be laid between Ibarra and San Lorenzo. The roadbed work has largely been finished and it is expected that the line will be in operation in 1956.

Meanwhile, studies have been completed for the transformation of San Lorenzo into a first-class deep-water port. A section of the bay will soon be dredged to handle large vessels.

Dominion Roofing Companies Accused of Price Fixing

Eleven Canadian asphalt and tar roofing material companies have been charged by the Canadian government's Restrictive Trade Practices Commission with combining to eliminate competition.

The companies, all members of the Asphalt Roofing Manufacturers Assn., were charged with collaboration over a long period to work out a merchandising plan which provided for a common system of prices, discounts, rebates, transportation charges and tendering on government contracts.

The commission report stated that "proceedings should be taken, as provided in the Combines Investigation Act, to seek a judicial restraining order which would forbid those practices and arrangements which have been so effective in maintaining a uniform price structure in the asphalt roofing industry. The restraining order should be broad enough to embrace the exchange of information which would be made use of to secure and maintain a common price structure and cost of transportation."

Companies named in the report are: Canadian Johns-Manville Co.; two subsidiaries of Dominion Tar & Chemical Co.—Alexander Murray & Co. and Canada Roof Products Ltd.; Barrett Co.; Bishop Asphalt Papers Ltd.; Brantford Roofing Co.; Building Products Ltd.; Canadian Gypsum Co.; Currie Products Ltd.; Phillip Carrey Co., and Sidney Roofing & Paper Co.

Two New Expressways to Untie Traffic Congestion in Detroit

Completion of two new expressways criss-crossing downtown Detroit will relieve the urgent traffic congestion problem in that city's metropolitan area. In addition, the expressways will greatly reduce time and inconvenience in traveling to and from the suburbs.

The John C. Lodge Expressway will run north from Jefferson Avenue for a distance of nine miles. The Edsel Ford Expressway will extend fourteen miles from the western to the eastern city limits.

Both expressways are designed to carry all types of traffic, with a capacity of 9000 vehicles per hour. Cross traffic is carried on overhead bridges, and there will be no traffic lights or grade intersections. The new highways have a minimum of three 12-ft traffic lanes in each direction, a 14-ft medial strip, two 8-ft refuge lanes, and two 30-ft service drives where necessary. Interchange ramps are placed at approximately ¼-mile intervals.

Bethlehem supplied steel for various already completed sections of the Ford-Lodge Expressways, and is in addition supplying steel for other portions now under construction. Among the Bethlehem steel highway products being used in the expressways are dowel units, reinforcing steel, and structural steel for bridges and overpasses.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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Legal

Materialman Allowed To Sue A Subcontractor's Surety

Surety bonds and the law of third party beneficiaries play a significant role in the relative rights of the various parties involved in a construction project. One who supplies materials to a subcontractor, for instance, has been allowed to recover payment out of the surety bond which the sub furnished the prime contractor, although he was not a party to the contract established by the bond.

Although the bond was primarily for the protection of the prime contractor, the provision calling for payment of material obligations was not limited. It was sufficient, the court said, to create an enforceable right in favor of the materialman against the surety.[1]

The case, which arose under Vermont law and came before a federal court, had its inception in a contract for construction of a radar station. To protect itself against liabilities imposed by the Miller Act for the cost of materials used by the subcontractor, the general contractor required a surety bond from the sub. The purpose of the bond was to secure payments due materialmen and to reimburse the prime contractor for any losses sustained by the sub's default. At the same time, the bond furnished by the prime contractor also provided for payment for materials used on the job.

After it was too late to sue on the prime contractor's bond because of the statute of limitations, a materialman of the subcontractor sued on the sub's bond.

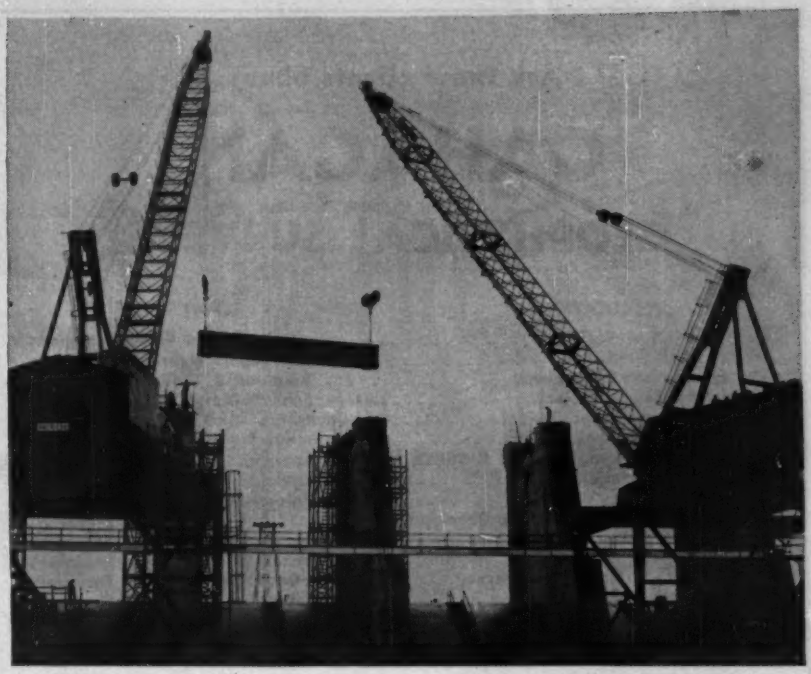
Effect of the bond, said the court, was a promise by the surety to pay the materialman. The materialman was given the benefit of the promise, although the latter ran to the prime contractor and not to the materialman.

(1) Socony-Vacuum Oil Co. v. Continental Cas. Co., C. A. 2, 219 F. 2d 645.

Recovery For Extra Work Often A Close Question

When an owner asks a contractor to do some extra work, one of the big questions is whether the contractor will be entitled to additional compensation. Generally, the answer depends upon the nature of the work and how the contract reads.

A California state court has summed the problem up this way: "Extra work



A 35-TON precast and prestressed girder being lowered into place in the north row of girders for the spillway bridge.

Unique Vibrator Mounting Enables Spillway Contractor to Vibrate Portion of Girder Impossible to Reach Internally

• **Contractor's ingenuity** has been an important factor in precasting and prestressing operations of the 32-span bridge of massive Garrison Dam which cuts off the Missouri River channel at Riverdale, North Dakota. Precasting and prestressing, although only a small part of the $13,300,000 stage I spillway contract, presented unexpected problems in placing the concrete.

• **The huge concrete slab** of the spillway chute was used as a casting bed for precasting and prestressing by the contractors on the project, Johnson, Drake & Piper, Inc.; C. F. Lytle Company; Foley Brothers, Inc.; Winston Brothers Company, and Donovan Construction Company. Among the many members cast on the job, were 64 girders, 47.33 feet long and 6 feet high. Viber Model PX high speed pneumatic external vibrators were used underneath on the first ten to twelve inches of concrete. It was impossible to reach this concrete with internal vibration due to the seven cables that fill the seven inch web.

A WORKMAN opens the valve to start a VIBER pneumatic vibrator held against the lower flange of a girder form by a Blackhawk floor jack. This external rig can be quickly moved to another location.

• **A novel rig** for mounting external vibrators was so portable that the contractor was able to place this concrete with two VIBER Model PX external vibrators. As concrete was placed, the jack and vibrators were rolled under the girder form between timber supports. Raising the jack forced the vibrator to bear against the form, vibrating the mix. Through use of this rig, the vibrator could be quickly shifted to another position against the form or rolled to the next pour.

• **For further information** on Viber's complete line of internal and external vibrators, contact your authorized distributor or Viber Company, Dept. 76, 726 South Flower Street, Burbank, California.

VIBER

CONCRETE VIBRATORS SINCE 1931

Ask these clients about

GAHAGAN

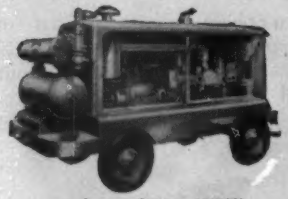
GEOPHYSICAL SURVEYS

LOCATION	CLIENT
East River, New York City	Consolidated Edison Company
Shelton Well Field	Bridgeport Hydraulic Company
The Connecticut Expressway	Ammann & Whitney, Engineers
Casco Bay Power Project	Central Maine Power Company
Delaware River Power Project	Jackson & Moreland Co., Engineers
Southeast Expressway, Mass.	Massachusetts Dept. of Public Works
Narrows Bridge Site, Brooklyn & Staten Is., N. Y.	Ammann & Whitney, Engineers
125th Street Bridge Site, N. Y. C.	Ammann & Whitney, Engineers
Narragansett Bay	New England Power Service Company
Baker River (Wash.) Hydraulic Development	Stone & Webster, Engineers
St. Lawrence Power Project	Sanderson & Porter, Engineers
Massachusetts Turnpike	Howard-Needles-Tammen & Bergendoff, Engineers
Garden State Parkway, New Jersey	Goodkind & O'Dea, Engineers
The Connecticut Expressway	Loomis & Sullivan, Engineers
The Connecticut Expressway	Knappen-Tippetts-Abbett-McCarthy, Engineers
Portland, Pa. Power Plant	Metropolitan Edison Company

Engineers planning heavy construction no longer need put up with spotty data about the subsoil. Gahagan (a leader in hydraulic dredging since 1898) now has seismic survey crews covering the country, using portable equipment. They provide a continuous and accurate picture of bedrock and the nature of the overburden—quickly, inexpensively. For further details, write, wire or telephone Ken Sandbach, Vice President, Geophysical Survey Division, Gahagan Construction Corp., 90 Broad St., New York 4, N. Y. Telephone: Whitehall 3-2558.

Trenching 7 miles of street, this Jaeger "125" Roto ran two 80 lb. breakers to line-cut and break a 7" top of asphalt over brick—averaged 1200 sq. ft. per 8 hr. day—used only 1½ gals. of fuel per hr.

Jaeger "125" Rotary speeds street work



Jaeger Rotary "600"

Instantaneous air delivery, under close and smoothly modulated control, enables the Roto 125 to maintain 100 lbs. minimum pressure under all demands up to 125 cfm. High efficiency results in slower speed operation, less fuel consumption, longer engine life than any other rotary. See your Jaeger distributor or ask for Catalog JCR5.

THE JAEGER MACHINE COMPANY 200 Dublin Ave., Columbus 16, Ohio

LOADER • PUMPS • MIXERS • TRUCK MIXERS • PAVING MACHINES

as used in connection with a building contract means work of a character arising outside and entirely independent of the contract—something not required in its performance, not contemplated by the parties, and not controlled by the contract. Wilson v. Salt Lake City, 52 Utah 506, 174 P. 847; Shields v. New York, 84 App. Div. 502, 82 N.Y.S. 1020. Whether a contractor is entitled to additional compensation for extra work depends generally on the construction of the particular contract and whether it is included in the contract price."[1]

The court went on to say that where "the extra work and materials are of a different character from those specified in the contract and no price is agreed on in advance for the furnishing of the extra, the party performing will be entitled to recover what they are reasonably worth. 17 Corpus Juris Secundum."

It added that even though a contract provides that no payment will be made for extra work unless authorized in writing, when the owner orally directs the contractor to perform extra work and the contractor does, the owner will be deemed to have waived the requirement of a written order.

In such instances, a contractor may be able to forestall a later argument over compensation by going on record, when he is directed to perform work not covered by the contract, that he considers such work as extras. Proceeding with such work without objection might be construed as an admission that work is covered by contract.

(1) Hickey, Inc. v. Los Angeles Jewish Community Council, 276 P. 2d 52, District Court of Appeal of California, Nov. 12, 1954.

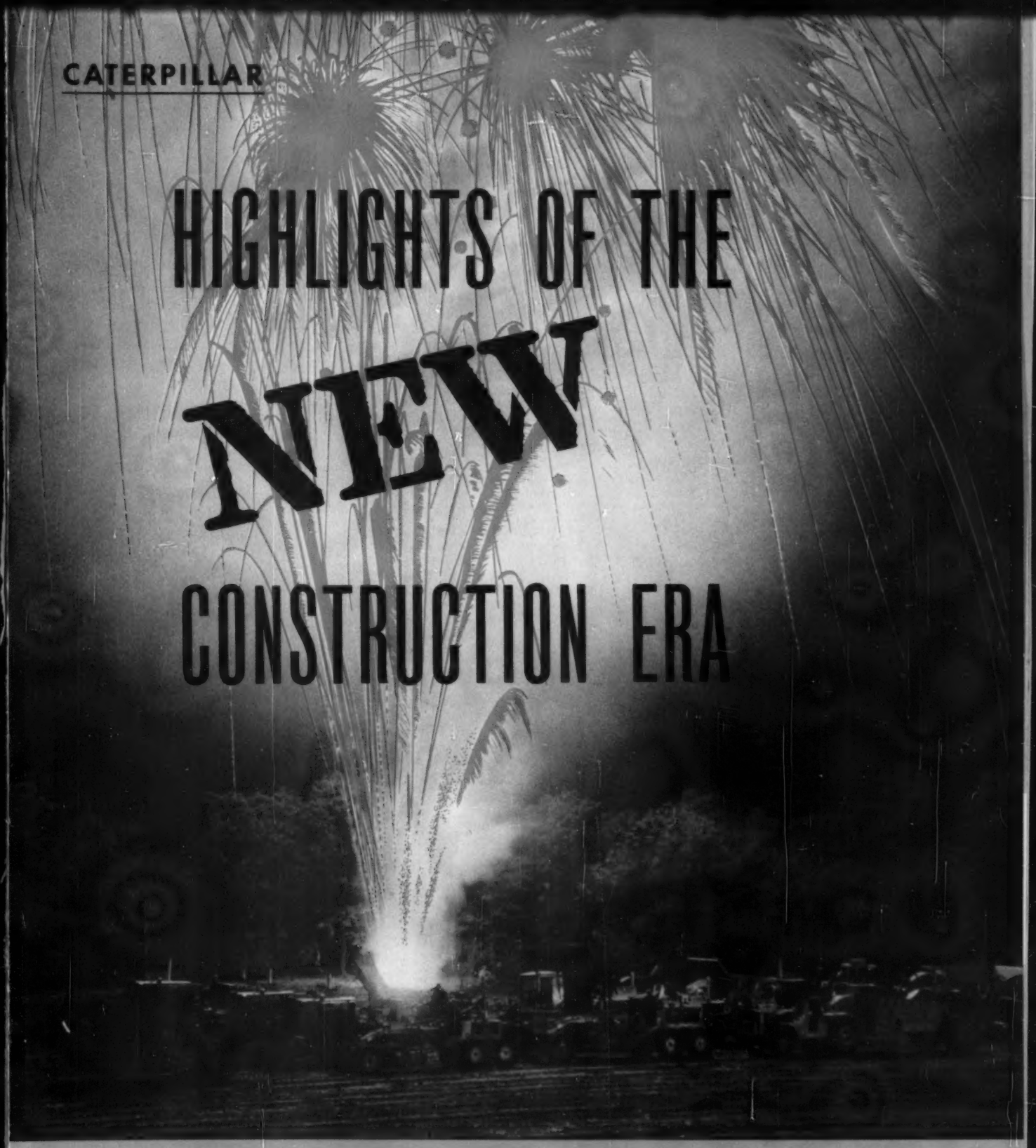
Insurer Sues Contractor Under Implied Warranty

A contractor's implied warranty that the work he does will be done in a good and workmanlike manner protects both the owner and the owner's insurer.

Illustrating the principle is an Ohio case[1] involving a heating contractor's relocation and reinstallation of a furnace. The work was so defective that a fire resulted. An insurance company paid the owner for the damages sustained by the fire. It was subrogated to the rights of the owner and allowed to recover from the contractor the damages sustained because of the faulty and defective manner in which the work was done.

(1) Glens Falls Insurance Company v. Standard Oil Company, 127 N.E. 2d 46, Court of Appeals of Ohio, Oct. 23, 1954.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)



Never before in history has the equipment industry faced such a tremendous challenge as today. We are entering what might well be called the "construction era." Right now construction is the greatest single factor in our industrial economy, employing 12% of our total labor force. And construction can never move forward by itself. Its progress is dependent upon increased production in mines and forests, cement mills and steel plants. Caterpillar Tractor Co. is matching these new opportunities with an array of new products that will increase production, cut maintenance costs, work longer and more profitably than any other equipment on the market. These Caterpillar-built products are the result of continuing research in the laboratory and in the field. They are forceful evidence of Caterpillar Leadership in Action. See them on the following pages.

NEW in track-type tractors!

The new D9

This new giant is a bear for work. Choice of torque converter or exclusive oil clutch drive. First track-type tractor with Turbocharger. Completely new 286 HP engine. "Live-shaft" drive for rear-mounted equipment. Many other important features.

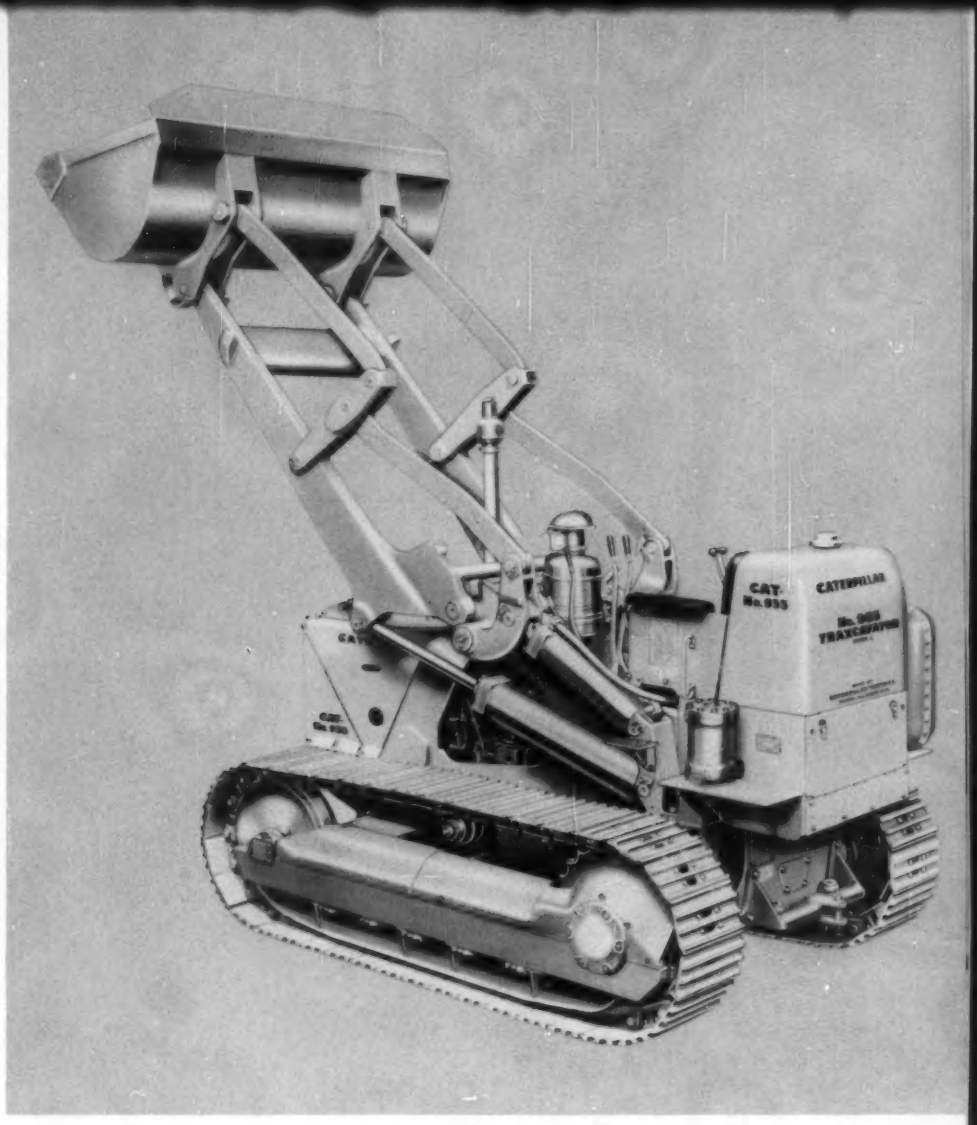
The new D8

With torque converter (Series D) or direct drive (Series E). Completely new 191 HP engine. "Live-shaft" drive for rear-mounted equipment independent of flywheel clutch. New easy controls. Many other improvements. Shown with new Cat No. 463 LOWBOWL Scraper.

The new D7 (Series C)

New 128 HP engine. Drawbar pull 28,700 lb. maximum. Exclusive oil clutch. Finger-tip steering. New starting engine for easier operation. Track shoes hardened by "*water quench*" process (also on D8 and D9). Many other important advances.

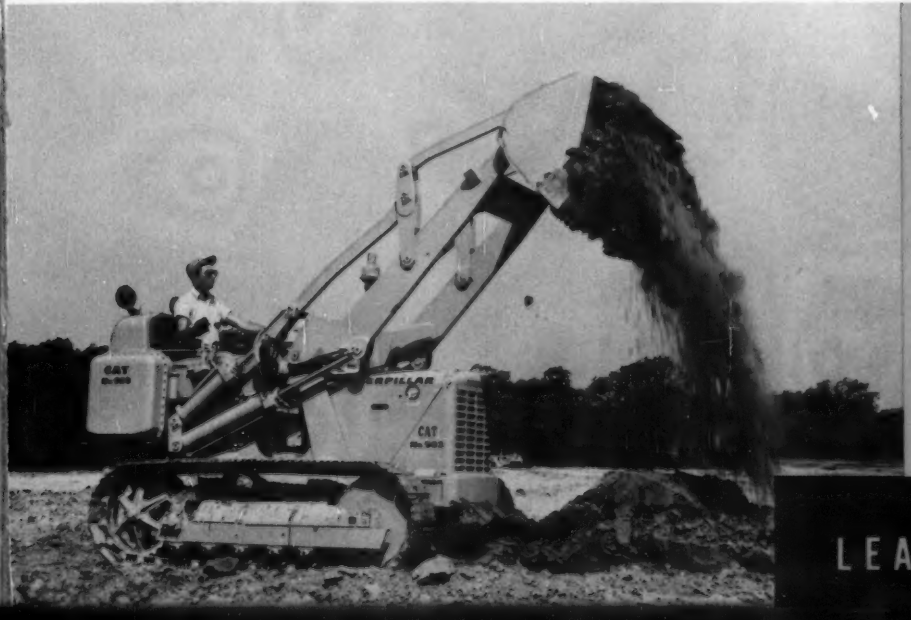
LEADERSHIP IN ACTION



No. 955—1½-yard capacity

Balanced for bigger production at lower cost. Major features: 40-degree bucket tip-back at ground level, new oil-type clutch, convenient lift and dump levers, modern hydraulic system, high reach, "designed in" operator comfort, optional starting and versatile attachments.

NEW in Traxcavators!



No. 933—1-yard capacity

Like its bigger brother, *balanced* to outproduce ordinary tractor-shovels of equivalent capacity. Also backed by *one* manufacturer to provide you the advantages of single manufacturing responsibility and one service source. Major features—same as the No. 955!

LEADERSHIP IN ACTION

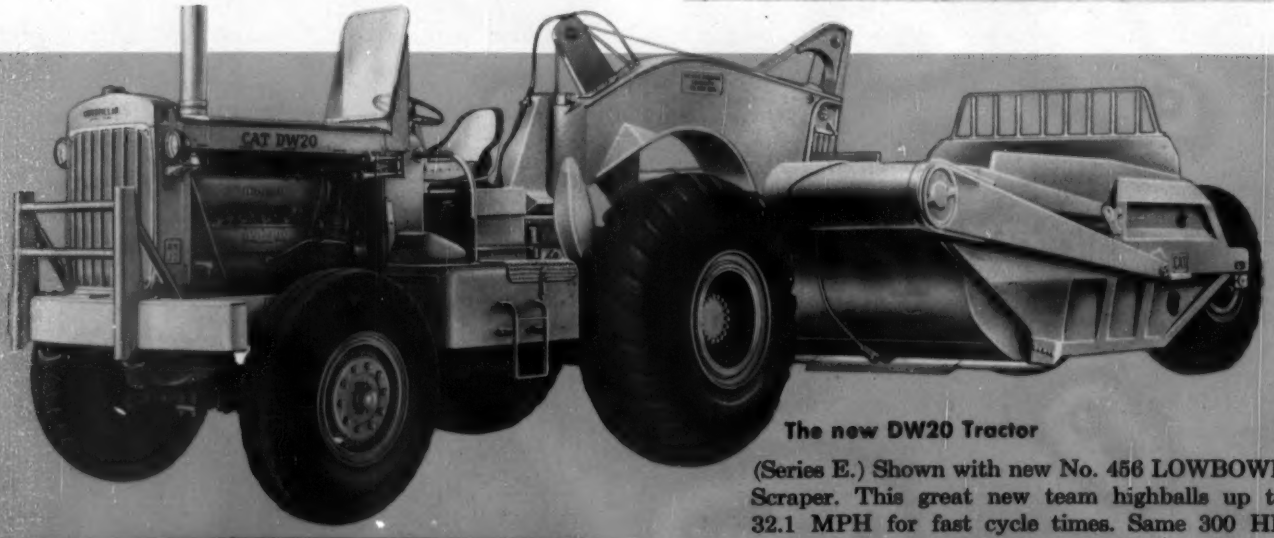
NEW in wheel-type tractors!

The new DW21 Tractor ▲

(Series C.) New 300 HP Caterpillar Engine with Turbocharger. 10% more rimpull. New No. 470 LOWBOWL Scraper. 18 cubic yards struck, 25 cubic yards heaped capacity. New, wide-section 29.5-29 tires give big-footprint flotation and maximum traction. Many other new, thoroughly tested features.

The new DW15 Tractor ▶

(Series C.) 186 HP valve-in-head Caterpillar Engine. Speeds up to 24 MPH (31.3 MPH with optional gears) pulling loaded wagon or scraper. Heavy-duty clutch has air booster. Air brakes. Wide range of speeds: 10 forward, 2 reverse.



The new DW20 Tractor

(Series E.) Shown with new No. 456 LOWBOWL Scraper. This great new team highballs up to 32.1 MPH for fast cycle times. Same 300 HP engine with Turbocharger and wide-section tires as DW21. LOWBOWL design loads more material in less time by using tractor and pusher power at maximum efficiency.

LEADERSHIP IN ACTION

NEW in pipelayers!

The new No. 583

Here, for the first time, is a pipelayer that is *all* pipelayer—not a tractor attachment. It's the most efficient, highest capacity pipelayer in history. Lifting capacity of 130,000 pounds and 21-inch clearance. Three-stage torque converter in main drive and new hydraulically actuated counterweights. Stability is unequalled. A heavy-duty constant-mesh pipelayer winch transmission drives directly from the engine. Many more important advances, all designed to produce more profits for pipeliners.

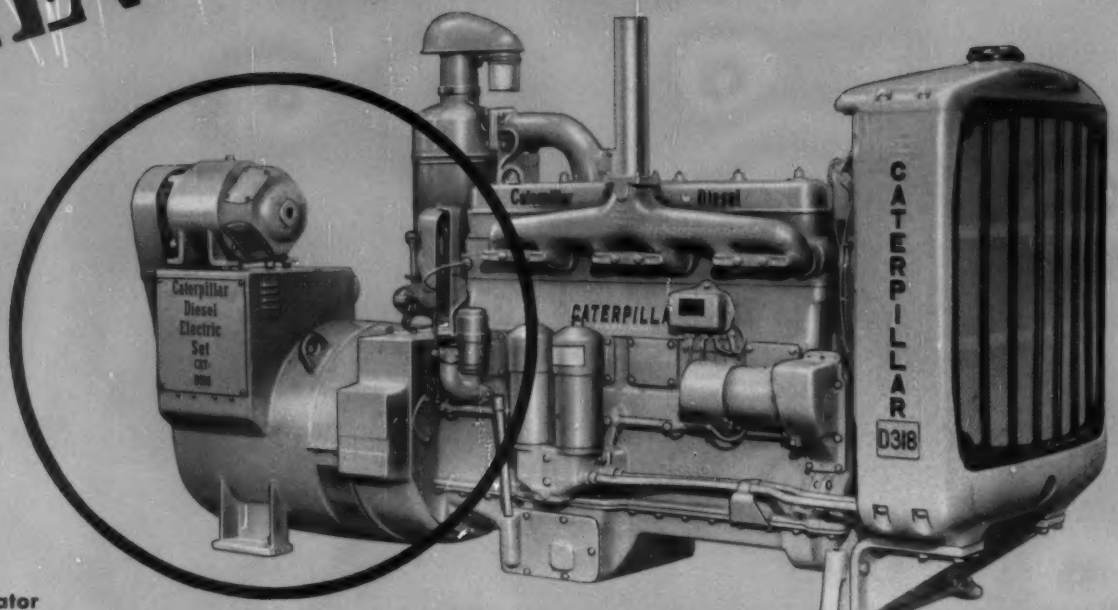
NEW in motor graders!

The new No. 12 with oil clutch

With the addition of the job-proven oil clutch, the big, versatile No. 12 Motor Grader gives you more economy and efficiency than ever. The new clutch increases work life since the constant oil bath lubrication reduces wear on all moving parts. There is less maintenance; 1500 hours without adjustment is not unusual and no external lubrication is needed. The new No. 12 is more efficient because the clutch is constantly cooled, eliminating clutch fade and slippage due to overheating.

LEADERSHIP IN ACTION

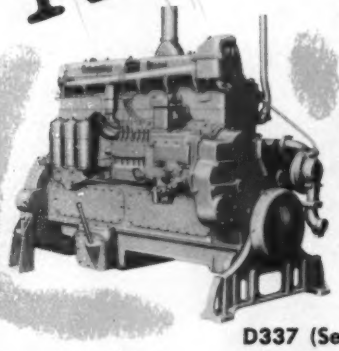
NEW in generators!



Cat Generator

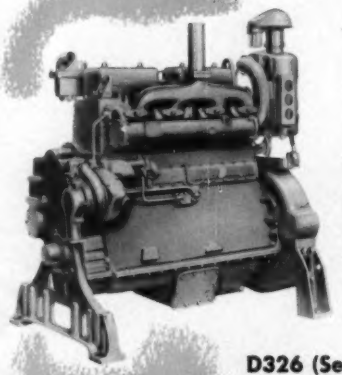
A major development in modern electric power. Brings to Caterpillar's new line of Diesel Electric Sets the efficiency of the externally-regulated set in a self-regulated set. Many advantages! Close regulation of voltage, simple control, excellent motor-starting ability, easy hook-up with other generators . . . 100% backed by Caterpillar.

NEW in diesel engines!



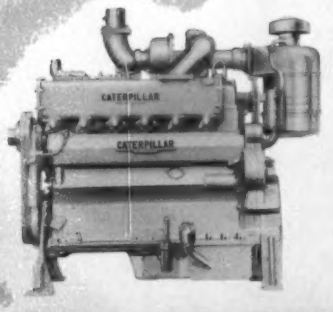
D342—210 HP maximum @ 1200 RPM

Incorporates the latest advances in modern, compact, heavy-duty diesel design. Offers better operation, less maintenance, higher horsepower. Choice of 3 starting systems—air, electric, gasoline. Like all Caterpillar Engines, burns wide range of fuels without fouling.



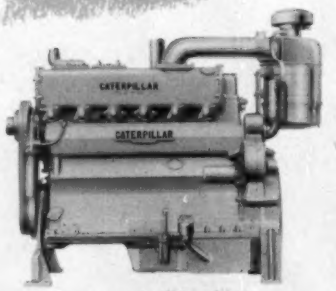
D339—140 HP maximum @ 1200 RPM

Combines new compactness with greater efficiency, economy and higher horsepower. A modern, heavy-duty 4-cylinder unit with new smoothness of operation. Choice of 3 starting systems. Many other advantages, including full-flow filtering system.



D337 (Series F) with Turbocharger 310 HP maximum @ 2000 RPM

New Turbocharger utilizes exhaust heat to drive supercharger, delivers air in proportion to engine's need. New hydraulic valve lifters practically eliminate adjustment, provide quiet operation. Greater displacement for more power. Choice of 3 starting systems. Available as Electric Sets and Industrial Engines with complete line of attachments.

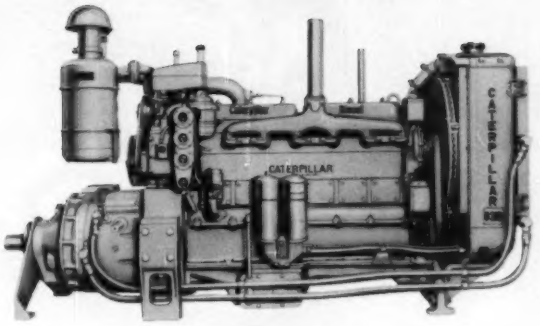


D326 (Series F)—200 HP maximum @ 2000 RPM

Like other new, heavy-duty Cat Diesels, offers you more for your money than any engine in its power range. Many major features, including hydraulic valve lifters and full-flow filtering. Greater displacement for more power. Choice of 3 starting systems. Available as Electric Sets and Industrial Engines with complete line of attachments.

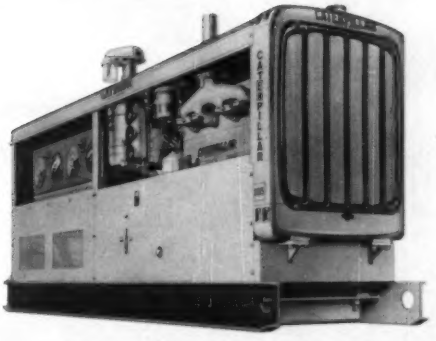
NEW in torque converters!

Caterpillar now offers a wide choice of torque converter power units in standard packages. Torque output is automatically matched to load for smooth load starts or control of load without use of clutch. Overloads can't kill engine. Your Caterpillar Dealer can supply these units. He also has full facilities and parts for service.



NEW in welders!

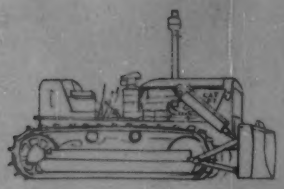
The new Caterpillar Twin Arc-Welder provides one engine, one base, and TWO 300-ampere welding generators. Four-cycle Cat Diesel picks up load instantly without missing or injector trouble. Compact design cuts transport and maintenance cost. Operators can weld at different voltages at same time. Single (3 KW) exciter cuts weight and size, provides ample excitation plus plenty of 115-V. DC for auxiliary tools.



NEW in portable electric sets!

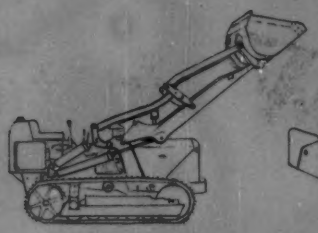
Cat Portable Electric Sets are now available in nine models, 30 to 315 KW, and in all usual voltages, 50 to 60 cycle. They're complete units with cooling system, fuel tank and switchgear, mounted on skids, semi-trailer or full trailer. Easy to hook up and operate, ready to work anywhere.

LEADERSHIP IN ACTION

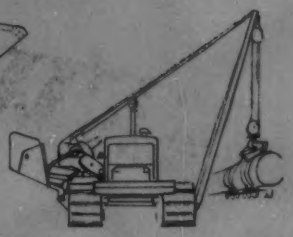


TRACK-TYPE TRACTORS

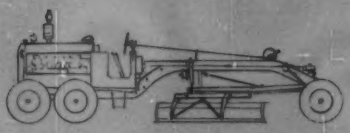
WHEEL-TYPE TRACTORS



TRAXCAVATORS



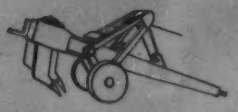
PIPELAYERS



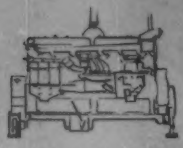
MOTOR GRADERS

SCRAPERS

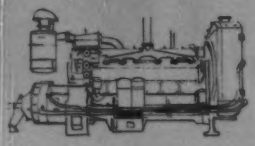
BULLDOZERS



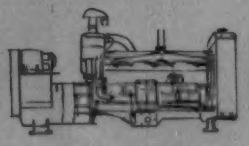
RIPPERS



INDUSTRIAL ENGINES

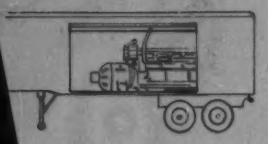


TORQUE CONVERTERS



GENERATORS

FOR YOU CATERPILLAR LEADERSHIP PROVIDES THE MOST COMPLETE LINE IN THE INDUSTRY



PORTABLE ELECTRIC SETS

WELDERS

Year after year you have seen the results of Caterpillar leadership. It is always in action. It never stands still. The full resources of Caterpillar research, both in the laboratory and right in the field with you, are constantly devoted to improving products and developing new ones. This means that Caterpillar is your partner in progress, bringing you better and better products, greater opportunities for profitable work. Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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LEADERSHIP IN ACTION

Men and Jobs

J. W. Vickrey

Dual Highway Posts

Two deputy engineers are appointed in California

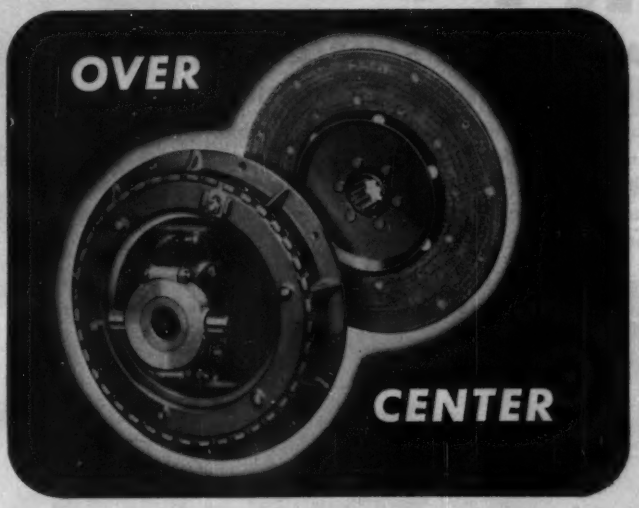
Appointment of J. W. Vickrey and Charles E. Waite as deputy state highway engineers for the California Division of Highways has been announced by State Highway Engineer G. T. McCoy.

The dual appointments, part of the first reorganization of the division since 1947, point up the complexity of administering a rapidly expanding highway program. Vickrey will serve as deputy for engineering and Waite as deputy for administration and management.

In the last 10 years, the state has

Charles E. Waite

ROCKFORD



LARGE DRIVING AREA

EASY OPERATION
HIGH TORQUE
POSITIVE ENGAGEMENT
LARGE DRIVING AREA *
SMOOTH RUNNING
INFREQUENT ADJUSTMENT
MINIMUM INERTIA

*The pressure plates in ROCKFORD Over-Center CLUTCHES have large area, accurately flat-ground surfaces for maximum contact with the facing material. Special alloy iron is used to withstand shock and heat strains. Provision is made for multiple driving, from the back plate. Have hardened steel bearing inserts, where the roller cams operate.

Send for This Handy Bulletin

Shows typical installations of ROCKFORD CLUTCHES and POWER TAKE-OFFS. Contains diagrams of unique applications. Furnishes capacity tables, dimensions and complete specifications.

ROCKFORD CLUTCH DIVISION BORG-WARNER
▲ 313 Catherine Street, Rockford, Illinois, U.S.A. ▲

CLUTCHES

GUNITE
PNEUMATICALLY PLACED CONCRETE
dense—durable—high strength

for — Swimming Pools
Fireproofing Structural Steel
Lining Steel Stacks & Bunkers
Repairing Docks, Dams & Bridges
Reservoirs
Water Main Lining
Sewer Repairs
Pile Protection
Stucco Coatings
Insulating Concretes
Thin Walls
Lining Rock Tunnels
Prestressed Tanks
Pressure Grouting

We are Gunite contractors and engineers of long, extensive experience covering many hundreds of jobs. Get in touch with us for complete engineering data and estimates on your problem.

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DRILLING CONTRACTORS

Diamond and Shot Core Borings
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Grout Holes and Pressure Grouting
Foundation Testing for Bridges, Dams and other Heavy Structures

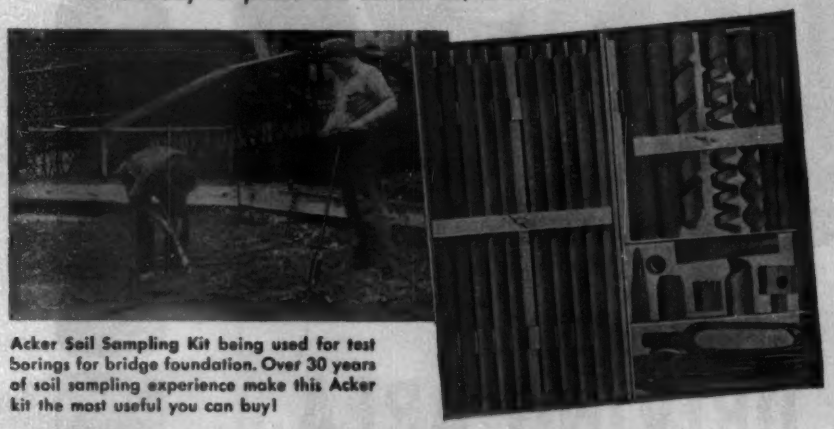
Manufacturers, also of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

SPRAGUE & HENWOOD, Inc.
Dept. E, Scranton 2, Penna.

DON'T GUESS!

use an ACKER SOIL SAMPLING KIT for accurate sub-surface information

With accurate sub-soil information, *you avoid* costly trouble later on. And, what better way to get this information than with a portable, easy to use Acker Soil Sampling Kit. For here is a versatile collection of twelve soil sampling tools packed in a handy steel kit that can be carried in any car.
Write today for prices and Bulletin 26, ENR.



Acker Soil Sampling Kit being used for test borings for bridge foundation. Over 30 years of soil sampling experience make this Acker kit the most useful you can buy!

ACKER DRILL CO., Inc. 725 W. Lackawanna Avenue Scranton, Penna.
a complete line of Diamond and Shot Core Drills, Drilling Accessories and Equipment

POUR CONCRETE at LOWER COST
BUY EFCO STEEL FORMS

Lifetime steel faces never need replacing
Easy to handle and assemble
Save time, material, money
Low original cost
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Stop JOINT SEAL FAILURES USE HOT POURED PARA-PLASTIC

• Keeps joint sealed under severest conditions of traffic, temperature
• May be pumped directly into joint from melting kettle

Resists bumps in warm weather

Maintains bond in sub-zero temperatures

Nothing equals the joint sealing performance and protection of Servicised Para-Plastic. Stable, constant in volume, Para-Plastic is a rubberized asphalt compound that maintains bond at normal and sub-zero temperatures. Field proven — widely used, it's the most effective joint seal on the market.

Write for details on Para-Plastic and simple, low cost application method.

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6051 W. 65th ST., CHICAGO 38, ILL.

spent or budgeted nearly $1,650,000,000 for highway improvements. Its mileage of multi-lane, divided highways, including those under construction or budgeted through June 30, 1957, was increased from 481 to 1,900.

The new deputy highway engineers have been serving as assistant state highway engineers and were selected for promotion from a newly established civil service list.

Vickrey, who joined the division in 1917, has been assistant engineer in charge of highway planning functions, including traffic and design, since 1947. Earlier, he served as traffic and safety engineer. Waite, a former district engineer and engineer of design, has been with the division for 26 years. Since 1949 he has been assistant engineer for public relations and personnel.

J. C. Womack, planning engineer, succeeds Vickrey, and J. P. Murphy, principal highway engineer in charge of public relations, succeeds Waite.

Construction Chief Returns From Assignment in Alaska

Malcolm R. Gilpin, who has served for eight years as chief of construction with the Alaska District, Corps of Engineers, returns to the United States this month to assume similar duties with the Southwestern Division, Dallas, Texas.

During his assignment in Alaska, Gilpin planned and supervised the reorganization of the construction division. The changes involved expansion of the Technical Control and Inspection Branch and consolidation of the construction division's project offices.

Malcolm R. Gilpin

DELIVERING
WATER CHEAPER

No Waiting for Water

DRESSER-COUPLED STEEL LINE SPEEDS RELIEF IN DROUGHT

When a drought struck Tuscaloosa in 1953, construction of a new 36-inch Dresser-Coupled steel water line was only partially completed. Rushing part of this line into emergency service relieved a critical water shortage.

The long lengths of lightweight steel pipe made handling easier, faster . . . with fewer joints required along the line. Moreover, steel's high beam strength meant fewer supports on spans.

Precision-made and factory-tested, Dresser Couplings, combined with steel pipe, supply "packaged pipe lines", ready for immediate, foolproof installations at site . . . with permanent, bottle-tight joints assured.

This is another example of the fast, low-cost, maintenance-free jobs you can do with Dresser-Coupled steel pipe. Providing virtually everlasting high-capacity lines, this is truly the modern way to *deliver water cheaper.*

TUSCALOOSA, ALA.
Installed by the Arthur Pew Construction Company of Atlanta, this 26,990-foot Dresser-Coupled 36-inch steel line extends from the new Tuscaloosa Reservoir on Yellow Creek to the pumping station. Not a single leak was found on a line test of 15,000 feet of pipe.

√ Wherever water flows, steel pipes it best. **Always put steel pipe and Dresser Couplings in your specifications.**

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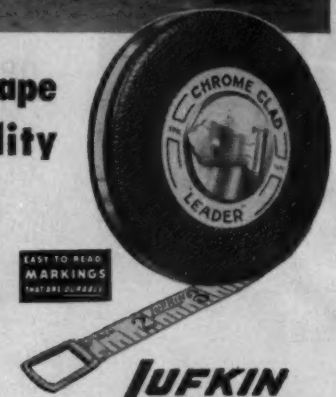
75th ANNIVERSARY · THE DRESSER WAY · 1880 · 1955

Dresser Manufacturing Division, 69 Fisher Ave., Bradford, Pa. (One of the Dresser Industries). Warehouses: 1121 Rothwell St., Houston; 101 S. Airport Blvd., S. San Francisco. Sales offices also in: New York, Philadelphia, Chicago, Toronto.

The Outstanding Steel Tape for On-the-Job Durability



The Lufkin "Leader" Steel Tape is **Chrome Clad** — many times more durable because the fine steel line is built up by Lufkin's exclusive process with a series of electro-platings. These platings strengthen the line, make it resistant to rust and corrosion, and protect the jet black markings that are easy-to-read against the satin chrome-white background. Line won't chip, peel or crack. Metal case is rust resistant coated, covered with durable maroon vinyl. Available in 25', 50', 75' and 100' lengths. Choice of standard or folding hook ring. Get more for your money — get the Lufkin Leader.

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LUFKIN LEADER

BUY LUFKIN TAPES — RULES — PRECISION TOOLS From Your Supply House
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Sound Powered TELEPHONES work in any emergency

because they NEED NO CURRENT

If everything else fails, these phones will still provide trouble-free performance over a distance of many miles. Speaking is activated solely by the sound energy of the voice while ringing is accomplished by a hand-driven magneto. For permanent installation on industrial projects or for temporary use on construction work where they can be moved as the job progresses.

INDOOR AND OUTDOOR MODELS

In selective or common ringing and semi-selective or common talking. Cost of upkeep is negligible.

Write for illustrated catalog

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You SET THE SPECIFICATIONS...

Special 4 x 6 Steam Fixed Drum Winch. Duty single line pull 4,300 lbs. at 90 FPM.

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. . . Men and Jobs

Skidmore, Owings & Merrill Name New General Partners

At its annual meeting in New York, the architectural firm of Skidmore, Owings & Merrill admitted three new general partners. They are:

• Edward J. Matthews, who joined the firm's New York office in 1952 after being associated with McKim, Mead & White.

• James W. Hammond, on the firm's Chicago staff since 1946. He served as project manager of the master planning and preliminary design for the U. S. Air Force Institute of Technology at Wright-Patterson Air Force Base in Dayton, Ohio, and was associated with various phases of AEC construction at Los Alamos, N. M.

• Walter A. Netsch, Jr., a former associate of L. Morgan Yost in Chicago. With the Skidmore firm since 1946, he has worked on the Oak Ridge project and is on the design team for the U. S. Air Force Academy.

A. L. Grover Leaves State Highway Post

A. L. Grover, pioneer in New Jersey roadbuilding, retired last week as director of the Division of Administrative Services of the New Jersey State Highway Department.

During his 42 years with the high-

(*Continued on page 96*)

Named Head of Dominion

H. Clark Bentall of Vancouver, B. C., has been appointed president of Dominion Construction Co., Ltd., and its associated companies, including Bentall Construction Co., Ltd. Robert G. Bentall was elected vice president. F. Wooster continues as secretary-treasurer, D. G. McIntosh as chief engineer and A. Pederson as general superintendent.

At *CORSICANA, TEXAS,* this Radial Cone Bottom PDM Steel Elevated Tank furnishes 750,000 gallons of water storage capacity, with a head range of 25 ft. Diameter is 73 ft.; tower height to bottom line, 81 ft.

PITTSBURGH •DES MOINES *Elevated* STEEL TANKS

From any angle

MODERN

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FINE-APPEARING

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an asset for any community

Your questions of cost, performance and suitability find satisfactory answers in the complete line of Pittsburgh-Des Moines Elevated Steel Tanks. The wide range of types and capacities covers the needs of town and metropolis with equal dependability. Write for your copy of our comprehensive "Modern Water Storage" Brochure—free on request.

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CHICAGO (3), 1218 First National Bank Bldg.
LOS ANGELES (48), ... 6399 Wilshire Blvd.
DES MOINES (8), 915 Tuttle Street
DALLAS (1), 1219 Praetorian Bldg.
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Complete details and drawings of every Kinnear Rolling Door are kept in fireproof vaults.

Parts are often supplied for Kinnear Rolling Doors that have served continuously for 30, 40 or 50 years. This Kinnear service is a form of "life extension" that protects your door investment *far into the future.*
You're sure of time-saving efficiency for *more years,* at lower cost with the smooth, *coiling upward action* of Kinnear Rolling Doors. Write for full details.

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1820-40 Fields Ave., Columbus 16, Ohio
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KINNEAR ROLLING DOORS
Saving Ways in Doorways

. . . Men and Jobs

way department, Grover, first employed as an accountant and later appointed secretary to the highway commission, has become a familiar figure to the public and to highway officials throughout the nation.

In addition to his state duties, he has been secretary and treasurer of the Association of Highway Officials of the North Atlantic States since its organization in 1924, and has served as a director of the American Road Builders Association.

Men and Jobs Briefs . . .

• **Associations**—The North Carolina sections of AWWA and SIWA names **Robert S. Phillips** of Charlotte as chairman . . . **Phil Martin, Jr.** of Tucson becomes president of the Arizona chapter of American Public Works Assn. . . . **Roy A. Shipley** is reelected president of Structural Clay Products Research Foundation.

The **Beavers,** an organization representing builders of dams, bridges and other heavy engineered construction projects in the West, will hold its first annual awards dinner in Los Angeles in January.

• **Careers**—**John A. Lowell** resigns as bridge engineer for the Alaska Road Commission to join Sverdrup & Parcel, consulting engineers in San Francisco . . . **D. Louis Tonti** is named executive director of the New Jersey Highway Authority . . . **George J. Goetz,** director of the Division of Buildings, is appointed Director of Public Works, Buffalo, N. Y.

• **Business**—**Mario G. Salvadori,** professor of civil engineering at Columbia University, joins Paul Weidlinger, New York consulting engineer, as an associate . . . **Morris Goodkind,** former director and chief engineer of the New Jersey State Highway Department, opens an engineering office in association with Goodkind and O'Dea, consulting engineers, Bloomfield, N. J. . . . **J. Donovan Jacobs,** chief engineer for the Kaiser-Walsh-Perini-Raymond joint venture on the Snowy Mountain project in Australia, establishes a consulting engineering office in San Francisco.

Bechtel Corporation, San Francisco, appoints **J. George Thon,** former project engineer on the Pittsburg and Morro Bay steam electric plants for Pacific Gas & Electric, as chief civil engineer, Power Division . . . **W. Wendell Beard,** a partner in the firm of Freese, Nichols and Turner, leaves to open his own office as consulting engineer in Houston, Texas.

MORE PULL WITH LESS FUEL!

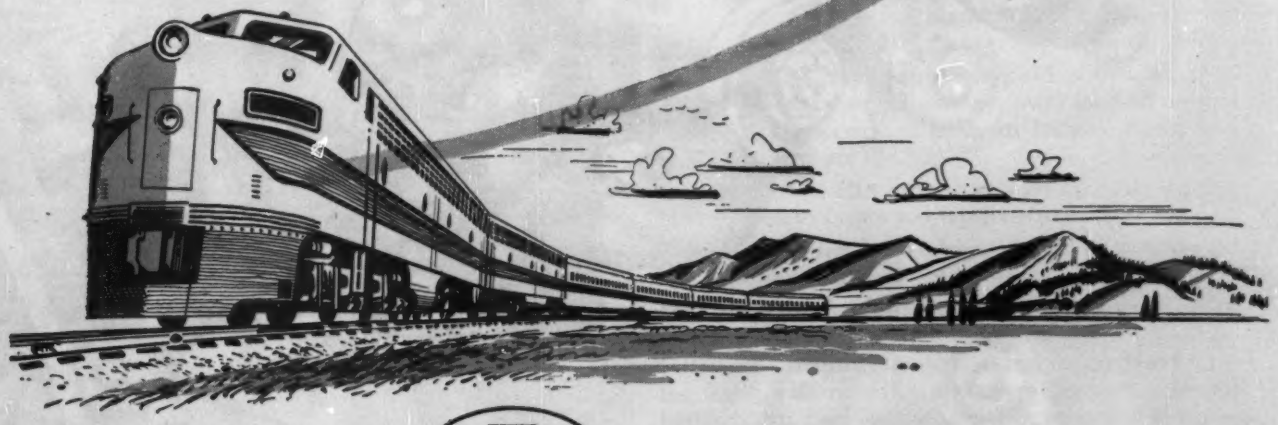
AiResearch Turbochargers provide rapid response to acceleration demands... end objectionable smoking!

Consider what the application of AiResearch Turbochargers to diesel locomotives will accomplish: A team of these small power packages will provide a greater increase in power at smaller cost in space and weight than any comparable turbocharger or supercharger installation.

In addition, specific fuel consumption on a horsepower per hour basis will be far less. Sea level performance will be restored within operating limits at altitude, response to acceleration demands will be rapid and excessive smoking under operating power eliminated. Also, the noise level will be greatly reduced.

Application in other fields will be equally effective, as has already been demonstrated in the remarkable results achieved by the installation of AiResearch Turbochargers on Caterpillar diesel machinery.

AiResearch is the largest producer of small turbomachinery in the United States, with twenty-five *million* hours of experience. This unmatched experience explains why AiResearch Turbochargers lead in power, economy and dependability.
Your inquiries are invited.



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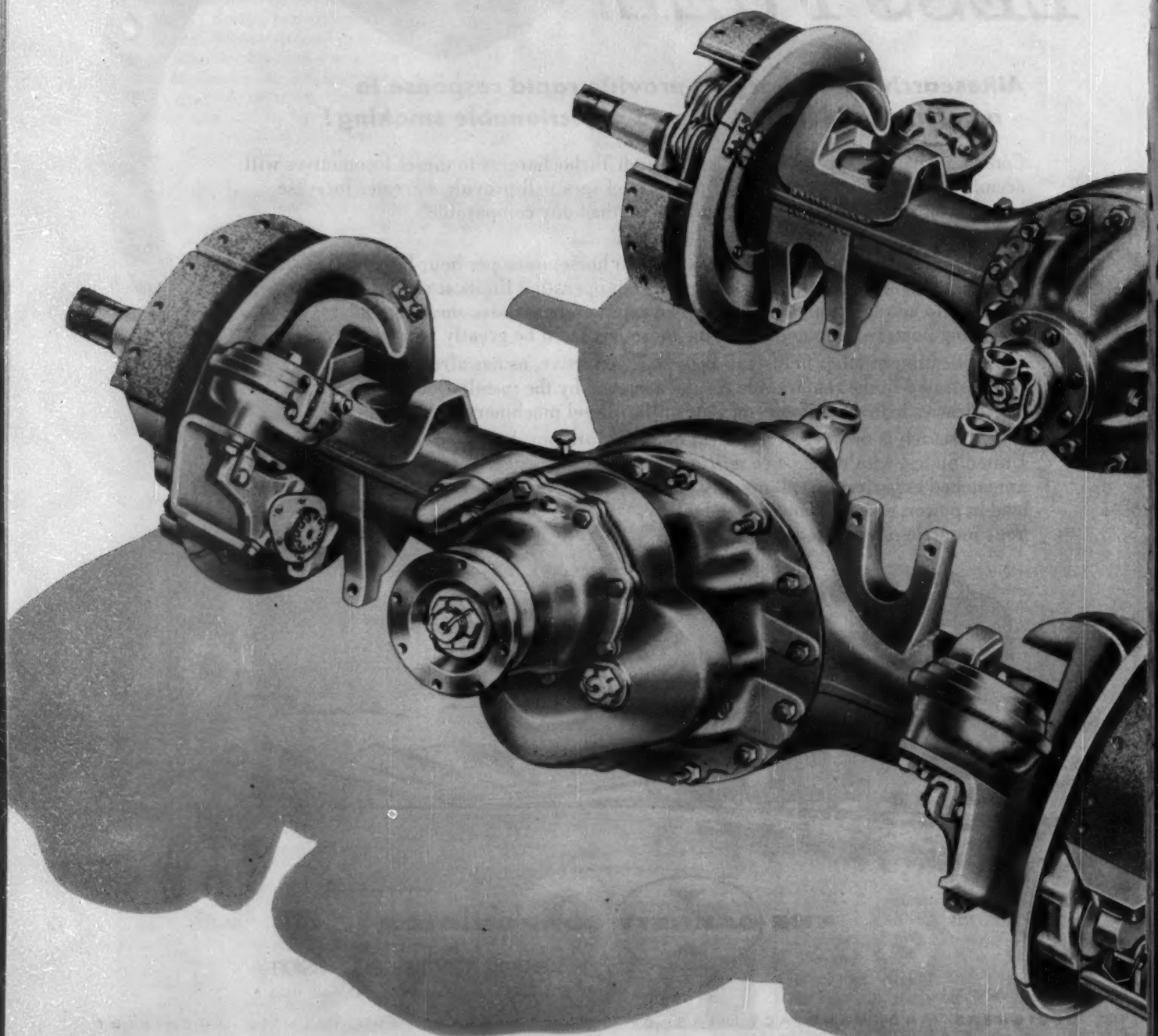
Now! A greater

SPECIALLY DESIGNED



WORLD'S LARGEST MANUFACTURERS OF AXLES FOR TRUCKS, BUSES AND TRAILERS

payload tandem

FOR HIGHWAY USE!

Lighter! The new Timken-Detroit lightweight tandem brings vital new opportunities for savings and profits to all highway truckers because of greater payload.

Serviceable! Built almost entirely from interchangeable companion parts used in famous Timken-Detroit single driving axles.

This lightweight tandem has all the features that contribute to profitable highway operation with all unnecessary bulk and weight eliminated. One Timken lightweight tandem unit is more than 200 pounds lighter than any other tandem unit of the same capacity!

Each year highway hauling achieves more spectacular importance. *Now* TDA presents a new lightweight tandem specially designed to answer the needs of over-the-road trucking. It is offered with a choice of either Timken-Detroit axle connecting groups, or brackets to accept other approved chassis hook-up parts. You get all these additional advantages with the Timken lightweight tandem:

Many proven standard parts and assemblies, gears, pinions, differentials, brakes used in Timken-Detroit *single axles* are incorporated in the new lightweight tandem. This assures operators fast, economical service with minimum down time.

A true inter-axle differential always under drivers' control is an important feature of the Timken-Detroit lightweight highway tandem.

Big, dependable hypoid gears rotate in conventional manner, carry load on normal drive side of teeth for increased gear and bearing life.

Torture-tested TDA axle shafts are upset forged and heat treated to insure top tensile strength.

Rugged hot-forged housings—pound for pound—are the strongest and most rigid built.

Less unsprung weight means lower impact and shock loads, for longer truck and trailer life.

This new highway tandem insures new payload profits, faster, easier service and operating economies for highway truckers everywhere. For complete information contact your nearest vehicle dealer or branch.

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Plants at: Detroit, Michigan • Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio • New Castle, Pennsylvania

Melt more ice and snow—faster

Cover more road mileage —faster

WITH STERLING AUGER-ACTION ROCK SALT

Auger-Action Rock Salt melts ice faster (up to 48% faster!). Auger-Action's multi-size crystals bore clear through to break the "seal" between ice and pavement. In minutes, they turn snow into slush for quick removal. Roads become safer —faster—when you use Auger-Action Rock Salt.

Auger-Action Rock Salt covers more mileage faster. Just one truckload of Sterling Rock Salt covers as long a stretch of road as five truckloads of abrasives! It takes only 500 lbs. to treat a mile of two-lane highway.

Cleanup expense eliminated. Auger-Action Rock Salt is gone with the snow and ice it melts. There's no residue left over. This means big savings in bare-pavement maintenance.

Shipment the way you want it. You can get this fast-acting Rock Salt in carloads or by truck in bulk, or in handy 100-lb. bags. Order Sterling Auger-Action Rock Salt *NOW*, and be ready for low-cost ice and snow removal. Write International Salt Company, Inc., Scranton, Pa., or the nearest district sales office listed below.

STERLING SALT products... made by International Salt Company, Inc., Scranton, Pa.

SALES OFFICES: ATLANTA, GA. • CHICAGO, ILL. • NEW ORLEANS, LA. • BALTIMORE, MD. • BOSTON, MASS. • DETROIT, MICH. • ST. LOUIS, MO. NEWARK, N. J. • BUFFALO, N.Y. • NEW YORK, N.Y. • CINCINNATI, O. • CLEVELAND, O. • PHILADELPHIA, PA. • PITTSBURGH, PA. • RICHMOND, VA.

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

STARTING NEXT MONTH, in the January 5, 1956 issue, instead of five price pages in one issue ENR will report one section of materials and labor prices each week and rotate them so that each price group will appear once a month. The January schedule will be in the January 5 report.

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload del.* per block		CONCRETE Ready Mixed 1:2:4 ave.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	50 c.y., del.
Atlanta	$3.97a	$3.56a	$3.40	$2.75	$2.75	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.18	$0.195	$12.25g
Baltimore	3.88a	3.48a	3.43	2.70‡a	2.70‡a	2.20‡a	2.75‡a	2.80‡a	1.95‡a	1.90‡a	.18	.18a	12.15
Birmingham	3.72	2.75e	....	2.53a	2.53a	2.08a	2.75	2.75	1.35	1.55	.165	.165	11.00
Boston	4.47b	4.11b	4.06	3.00a	3.00a	3.00a	1.60a	1.75a	....	....	.23	.265a	13.00h
Chicago	3.73a	3.32a	3.35	3.60‡b	3.60‡b	3.75‡b	3.50‡b	3.50‡b	2.25‡	2.25‡	.23	.23b	13.00
Cincinnati	3.95c	3.55c	3.73	2.19‡c	2.24‡c	2.24‡e	2.54‡c	2.54‡c	....	....	.195	.225a	12.10
Cleveland	N.A. in C.L.	3.34c	....	2.05ef	1.85f	1.65	4.10‡a	4.10‡a	3.35‡a	3.15‡e	....	.22	15.45
Dallas	3.15a	2.85a	2.03	2.18	2.28	1.84	2.22	2.38	....	....	.11e	.2675	9.40
Denver	4.44a	3.94a	4.44	1.85	2.00	1.20	....	....	....	....	.23	.255a	10.70
Detroit	3.89a	3.30a	3.54	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	.22	.24a	12.80
Kansas City	4.10b	3.90b	3.90	1.65	1.65	2.00‡a	2.00‡a	2.00‡a	....	....	.20a	.24c	13.00b
Los Angeles	4.92ch	4.46ch	5.40	2.31‡a	2.51‡a	2.31‡a	2.16‡a	2.31‡a	....	....	.145fm	.235m	12.46h
Minneapolis	4.20a	3.70a	3.71	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	....	....	.19	....	13.25f
Montreal	3.11d	2.86d	....	2.20‡a	2.20‡a	2.25‡a	1.90‡i	2.20‡i	....	....	.17	.17a	10.80ak
New Orleans	3.55a	3.15a	3.48	2.44	2.44	2.00	....	....	1.45	1.65	.275	....	12.90
New York	4.26a	3.85a	3.63	3.05bk	3.05bk	2.00bk	2.80bl	2.80bl	....	....	....	....	15.50am
Philadelphia	3.73/4.12‡a	3.42/3.79‡a	3.58/3.63‡	2.85‡ep	2.85‡ep	2.35‡ep	2.45‡	2.55‡	2.00	2.35	.22/.26	....	13.20de
Pittsburgh	3.75a	3.56a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.25d	.31	14.00
St. Louis	3.70/3.93e	3.25/3.51e	3.55/3.72	3.25am	3.00am	2.40/3.00am	1.60j	1.70j	1.50	1.50	.22	.28e	13.25
San Francisco	3.83e	3.39e	....	2.07	2.07	2.17	2.22	2.22	....	....	.21	.28el	12.15e
Seattle	4.80a	3.55a	5.95A	4.00‡bm	4.00‡bm	4.00‡bm	4.50‡bm	4.50‡bm	....	....	.26	.3515	13.30g
Toronto	3.97	3.77	3.77	2.25	2.25	1.85	2.00	2.00	2.00	2.00	.25	.35c	14.95

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots, destination price. *h LCL.

SAND GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *o 1–3 mi zone. *p Add 10¢ for ea. add'l mi zone.

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *l Less 2% for cash *j F.o.b. plant San Rafael. *m F.o.b. yard.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 25 cu. yds or more. *c 10–100 cy. brackets. *d 1–3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *l 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1:2½:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for paymen within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.90†	Buffington, Ind	$2.85†	Steelton, Minn	$2.95†	Muskegon, Mich	$3.00†	Toledo, O	$2.90†
Clinchfield, Ga	2.90†	Independence, Kan	2.80†	Leeds, Ala	2.75†	Saginaw, Mich	3.00†	Milwaukee, Wis	3.05†
Kingsport, Tenn	2.90†	Hannibal, Mo	2.85†	Duluth, Minn	2.95†	Wyandotte, Mich	3.00†	Green Bay, Wis	3.05†
West Des Moines, Iowa	2.95†	Northampton, Pa	2.90†	Hudson, N. Y	2.75†	Buffalo, N. Y	3.25†	Ironton, O	2.90†
Nazareth, Pa	2.90†	Universal, Pa	2.95†	Alpena, Mich	2.90†	Oswego, N. Y	3.15†	Montreal City	2.55
Bath, Pa	2.90†	Waco, Tex. (+ 10¢ tax)	2.85†	Detroit, Mich	3.00†	Cleveland, O	2.95†	W. Winfield, Pa	3.00†

†*Prices to hold for fourth quarter of* 1955.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT		ASPHALT BINDERS—FLUXES		CUTBACK ASPHALT MC		ROAD OIL	ASPHALT EMULSION RSI	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Per ton, less than 80 penetration		Per gal., 80–300 penetration		per ton		Per gal.	Per gal.	
				Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	.....	.....	.....	$26.00	$33.25	$0.115	$0.23	$0.125Pw	$0.27Pw	$0.15	$0.15	$0.25
Baltimore	150.00‡	75.00‡	.....	21.00f	.....	.085i	0.175i	.09iwE	.18iwE	.09i	.095i	0.185i
Birmingham	.....	57.50a	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00ap	23.00ap	22.00av	22.00av	.09aF	.....	.10a	.145aG	.23aG
Chicago	155.00‡	85.00‡b	3.50/3.55‡j	20.85b	30.85b	19.85bv	29.85bv	.09625bwH	.17625bwH	.0775b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	73.00d	5.03g	23.00A	.....	23.00A	.....	.1025AwF	.....	.....	.1025AG	.18AG
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	28.91	50.44	.098	.1087	.1960
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	111.00	.....	27.21	.....	27.21v	.....	.1188wI	.....	.0966	.....	.211
Kansas City	e	e	e	15.00el	.....	17.50v	.....	.07*wJ	.....	.055e	0.11	.....
Los Angeles	e	.....	e	17.00dmz	.....	17.00dvz	.....	18.00dz K	.....	17.00*y	.0675j	.1875j
Minneapolis	.....	.....	2.97k	25.00	.....	25.00	.....	0.105w	.....	0.095	.1075	.....
Montreal	e	e	e	27.00n	30.60n	.135n	.198n	16.50nuE	20.90nuE	.132n	.197ns	.270ns
New Orleans	.....	.....	.....	17.50e	.....o	17.50ev	.....o	.085ew	.....o	.085BL	.085BL	.....
New York	.....	.....	2.85f	23.80qCD	44.32qD	22.80utCD	43.57utD	.1023wCDF	.1890wDF	.....	.1023CD	.1918B
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.09uF	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00E	40.00E	.098	.11	.224
St. Louis	.....	.....	.....	18.76f	.....	.1704	.....	.0863fwM	.....	0.1575	.10	.....
San Francisco	.....	67.50c	.....	17.50g	33.00g	17.50glv	33.00glv	20.00gN	37.50gN	18.75e	.085y	.....
Seattle	.....	.....	.....	17.50h	37.50h	18.25hv	.....	25.50K	.....	20.75hv	.00h	.105r
Toronto	.....	.....	4.03	23.80	46.67	0.19	0.24	0.20w	0.25w	0.17	0.20	.24

h Delivered.

PAVING BRICK & BLOCK: *a CL. *b 3 x 4 x 8. *c 2¼ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 8¢ treat. *g 3" *h 2" tr, 8¢ *l 3 x 3¼ x 8¼. *j 2½", 6 lb. tr.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 80–110 penetr. *l Less than 100 penetr. *m 40/80 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *q 40/85 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 85/200 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *C Bulk. *D Prices based on transporting to manhattan via truck. *E RC. *F Also RC. *G Also MS, SS. *H RC 0–5 incl. *I MC 4. *J MC, RC .0675. *K MC 3, 4 & 5. *L Ma. *M MC 1–5, RC 1–5, .089. *N MC 3. *P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES— CARBON STEEL	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$4.60	$4.50	$4.65	$9.25	.....	$94.50	$113.00	$5.825	$7.90	$5.625	.....
Chicago Area	4.60	4.50	4.65	9.25	$5.45	94.50	113.00	5.825	7.90	5.625	.....
Pittsburgh Area	4.60	4.50	4.65	9.25	5.45	94.50	113.00	5.825	7.90	5.625	$11.50
Buffalo Area	4.60	4.50	4.65	9.25	5.45	94.50	113.00	5.825	7.90	5.625	11.50
Cleveland	.....	.....	4.65	9.25	5.45	.....	.....	.....	.....	.....	11.50
Youngstown Area	.....	.....	4.65	.....	.....	.....	.....	.....	7.90	.....	.....
Geneva	4.60	4.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	.....	.....	.....	.....	5.45	.....	.....	.....	7.90	.....	.....
Pueblo	4.90	5.35	5.10	.....	.....	.....	95.00	5.825	7.90	5.625	12.40

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot Rail steel	EXPANDED METAL LATH‡ Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH‡ Per 100 sq. yd., carload lots Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	$7.63	$7.42	$7.42	$38.00‡	$42.00‡	
Baltimore	7.63	7.00j	.....	44.00	47.00	
Birmingham	7.28t	7.08t	7.08t	51.00p	57.00p	
Boston	8.13a	7.82	7.82	44.00	48.50	
Chicago	7.28	6.23gu	6.23gu	49.00‡	60.00‡	
Cincinnati	7.75ak	7.56rs	.....	41.00mn	45.50mn	
Cleveland	7.91	6.41c	.....	41.00‡	45.50‡	
Dallas	9.05	7.25	7.25	49.00	52.00	
Denver	8.75	7.80c	.....	54.00n	60.00n	
Detroit	7.75	7.38	.....	55.50	66.00	
Kansas City	7.95a	7.75	.....	49.00	60.00	
Los Angeles	8.15/d	7.60	.....	54.50	60.50	
Minneapolis	7.64d	8.06b	8.06b	42.50	47.00	
Montreal	7.70–8.15iC/7.75–8.15A	7.50/8.65i	7.50/8.65	46.00k	51.00k	
New Orleans	.....	6.40uks	.....	66.00	60.00	
New York	7.77	7.35y	7.35y	44.50no	51.00no	
Philadelphia	7/7.15	7.30/7.45	.....	38.00‡	42.00‡	
Pittsburgh	6.98	7.37z	6.98	39.78	41.90	
St. Louis	7.68s	6.75c	6.75c	57.00‡	59.00‡	
San Francisco	8.20	7.45j	.....	44.00	52.25	
Seattle	5.35e	7.00cj	.....	53.50nr	59.50nr	
Toronto	8.40*	6.40	6.40	53.50nq	67.50nw	

Quantity extras, per cwt: under 100/, +$3; 100–399/, +$2; 400–999/, +1.25; 1000–1999/, +30¢; 2000–4999/, base price; 5000–9999/, —10¢; 10,000–19,999/, —30¢; 20,000–29,999/, —50¢; 30,000/ and up, —70¢

EXTRAS, per cwt—*Quantity: less than 700/, +50¢; 700–1499/, +25¢; 1500–7999/, +10¢. *Sizes: #3 +$2.20; #3 +$1.10; #4 +80¢; #5 +62.5¢; #6, #7 +45¢; #8, #9, #10 +30¢. *Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job). *Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–500 tons, +50¢ but not over $4500; 30–200 tons, +60¢ but not over $240; under 5 tons, +85¢ but not over $70. *Design only: +60¢.

WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill			
4 × 16 in., No. 5 & 10 wires	Joliet, Ill., Donora, Pa., Monessen, Pa.	$3.40	
4 × 12 in., No. 6 & 12 wires	Joliet, Ill., Donora, Pa., Monessen, Pa.	$3.47	
6 × 6 in., No. 6 & 6 wires	Joliet, Ill., Donora, Pa., Monessen, Pa.	$3.57	

*‡ Delivered *a 2000–9999/ *b 10,000–15,999/, fob city *c 20 tons or over *d 10,000–19,999/ *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more. *q 3/ *r 2% off for cash *s 2,000–4,999/ *t add 15¢ del. *u add 6.25¢ switch *v incl 15¢ del. *w 3.5¢ *x add 5¢ switch *y add 30¢ del. *z add 10¢ del. *A American made. *C Canadian made. † Number system replaces inch system of classifying bar sizes. New system is based on number of eighth inches in diameter of bar. *• Aver. of Canadian & American.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEXa	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 12" Sew Cl. 1	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 PER 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	113.6	$1.52	$2.53	$.545	$1.27	$4.82	$12.925	.....	.....	$0.90m	$3.40m
Baltimore	122.9	1.52	2.53	.595	1.1475	4.59r	12.095	$178.20	$274.80	1.01	2.75
Birmingham	109.3	1.52	2.53	.42	.75	3.30w	10.50w	260.00‡	400.00‡	1.25m	2.75m
Boston	125.5	1.54	2.32	.62qrt	1.215qrt	4.95qrt	12.505qrt	197.40r	303.60r	1.54mg	3.65mg
Chicago	122.9	1.52	2.32	.77m	1.48m	6.25m	19.00m	150.00‡	270.00‡	1.00	3.65
Cincinnati	118.0	1.54	2.40	.665t	1.2825t	4.905t	12.505	240.00	370.00	.80m	2.95m
Cleveland	123.6	1.54	2.40	.546s	1.053s	4.32t	11.48t	158.00m	245.65m	.85m	3.25m
Dallas	120.1	1.54	2.66	.439	.799	4.00b	9.17b	.....	.....	.49	1.60
Denver	129.0	1.62	2.66	.45n	.78n	3.48n	.....	.....	.....	.74m	2.50m
Detroit	123.9	1.54	2.40	.80	1.55	6.15	16.80	240.00m	370.00m	.95	3.82
Kansas City	120.7	1.54	2.40	.56	1.00	4.13	11.20	250.00	480.00	.90	2.90
Los Angeles	131.1	1.62	2.32	.67l	1.46l	5.97l	14.89l	228.20l	348.90l	.95	2.75f
Minneapolis	131.0	1.57	2.53	.78mo	1.42mo	6.25mo	.....	.....	.....	1.66k	4.47k
Montreal	.....	.....	.....	1.07u	1.73u	5.52u	8.93u	.....	.....	1.17k	3.11j
New Orleans	116.0	1.52	2.53	.51	.925	4.91	.....	280.00p	460.00p	.65	2.29
New York	121.5	1.54	2.32	.65	1.62	6.33	16.40	.....	.....	1.15	3.00
Philadelphia	120.9	1.52	2.32	.67	1.29	5.08y	12.65z	300.00‡	350.00‡	1.60k	3.95k
Pittsburgh	124.7	1.54	2.32	.468m	.864m	3.86m	9.78m	152.00	244.00	1.05k	2.50k
St. Louis	119.3	1.52	2.40	.56	1.03	4.22	9.80	180.00l	380.00l	1.30il	2.80il
San Francisco	131.1	1.62	2.32	.74d	1.62d	6.59d	16.47d	235.00l	392.00l	1.05m	3.30m
Seattle	131.1	1.62	2.32	.51b	.91b	.....	.....	150.00c	.....	.90k	2.85k
Toronto	.....	.....	.....	.76	1.425	5.70	.....	157.00	280.00	.87	3.05

*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote

MILL	Black %	Galv. %	Butt Weld‡ Black %	Butt Weld‡ Galv. %	Lap Weld‡ Black %	Lap Weld‡ Galv. %
Lorain, Ohio	28.00	10.75	28.00	10.75	28.00	10.75
Aliquippa, Pa.	28.00	14.25	28.00	10.75	28.00	10.75
Sparrows Pt., Md.	28.00	8.75	28.00	9.75	27.00	9.75
Benwood, W. Va.	28.00	10.75	28.00	10.75	28.00	10.75
Youngstown, O.	28.00	10.75	28.00	10.75	28.00	10.75
Indiana Harbor, Ind.	27.00	9.75	28.00	14.25	28.00	14.25
Sharon, Pa.	.....	.....	28.00	10.75	28.00	10.75
Wheatland, Pa.	.....	.....	28.00	10.75	28.00	10.75
Etna, Pa.	.....	.....	28.00	14.25	28.00	14.25
Fontana, Calif.	.....	.....	16.50b	2.75b	16.50b	2.75b

	1¼ & 1½ in.	2 in.	2½ & 3 in.	3½ to 6 in.
Butt Weld‡	+0.25d	+0.25d	+1.25d	+1.25d
Lap Weld‡	+4.25s	+4.25s	+4.25s	+3.25d
				+7.25ab

†Threaded and coupled. a 3½ to 4 in. b Continuous weld. c 5 and 6 in. d 6 in.

*‡ Delivered. *a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 109.3; Burlington, N. J., 118.1. *b Extra strength ASTM C 200–44T *c 4-in., $90 *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76–41 *h reinforced, ASTM C 75–41 *i reinforced, ASTM C 76–37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13–40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60–1941 specs. used *v standard strength *w se; add 20% for d.s.

*WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.(*based on approx. $200 per net ton): Butt Weld ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. Lap Weld 3½ in., 92¢;4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 80.25, galv., + 78.50; 1¼ in. black, + 50.25, galv. + 76.0, 1½ in. black, + 46.75 galv. + 74.25; Lap Weld —2½ in. to 3 in. black + 52.50 galv. + 78.50; 4½ in. to 6 in. black + 48.50 galv. + 73.75 Add freight rates plus 3% transportation tax to get destination price.

FOR MARSHLAND SEWERS...

MARTINEZ, CALIFORNIA, SPECIFIES

CLAY PIPE

This $200,000 sewer project in Contra Costa County, California, posed some difficult trenching problems. The area is marshy, and water seepage made conventional installation methods impossible. New Clay Pipe jointing techniques, however, solved the problems and provided infiltration-tight lines, even though trenches were water-filled and muddy.

The industry-wide Clay Pipe research program has developed many new jointing materials and methods that save time and cut costs. Now you can couple the never-wear-out performance of Clay Pipe with the speed and ease of trigger-fast installation. For more information about these new techniques, write to your nearest NCPMI office. Get all the details about the latest jointing methods for Vitrified Clay Pipe—the *only* pipe that *never wears out.*

Vitrified

CLAY

CLAY PIPE NEVER WEARS OUT!

PIPE

NATIONAL CLAY PIPE MANUFACTURERS, INC.

1820 N. Street N.W. Washington 6, D. C.

311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
206 Connally Bldg., Atlanta 3, Ga.

C-1155-4

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft.
(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	12x12 Rgh	PLYWOOD Rail freight increment (See note for base price) ⅜"	¾"
Atlanta † Baltimore * Birmingham † Boston * Chicago ** Cincinnati * Cleveland ** Dallas ‡ Denver * Detroit ‡ Kansas City * Los Angeles ‡ Minneapolis # Montreal ab New Orleans † New York § Philadelphia ‡ Pittsburgh † St. Louis # San Francisco A Seattle † Toronto a	**$76.00** **90.00** *130.00g* **81.50** *105.00* **101/107a** *84.00n* **96.00** *102.00* **93.75** *98.75* **94.00** ..... **75.00** *Not in stock* **115.00** *125.00* **130.00** *135.00* *102.00* *135.00* **92.00** *170.00* **102.00** *116.50* **112.50** *76.00* *72.50* **97.00** *105.00*	**$80.00** **95.00** *130.00g* **83.50** *105.00* **110/115a** *94.00n* **99.00** *102.00* **94.75** *101.00* **96.00** ..... **80.00** *Not in stock* **118.00** *125.00* **130.00** *135.00* *102.00* *135.00* **100.00** *170.00* **102.00** *116.50* **115.50** *76.00* *72.50* **100.00** *107.00*	**$75.50** **92.00** *130.00g* **80.50** *108.50* **105.00a** *125.00* **92.00** *114.00* **83.00** *110.00* **103.00** *118.00* **72.00** *118.75* **108.00** *125.00* **115.00** *130.00* **125.00** *135.00* *102.00* *140.00* **92.00** *170.00* **94.50** *119.00* **122.50** *125.00* Range from $117.00 to $137.00 *Range from $131.00 to $163.00* **110.00** *127.00* **125.00d** *127.00* *66.00* *72.50* **95.00** *115.00*	**$74.00** **93.00** *130.00g* **87.50** *108.50* **105.00a** *125.00* **107.00** *119.75* **115.00** *130.00* **125.00** *139.00* *102.00* *140.00* **92.00** *170.00* **97.00** *126.50* **127.50** *135.00* *102.00* *140.00* **110.00** *170.00* **57.00** *126.50* **127.50** *135.00* *127/134e* *86.00* *72.50* **93.00** *115.00*	**$77.50** **93.00** *130.00g* **90.50** *108.50* **105.00a** *125.00* **115.00** *119.75* **118.00** *130.00* **135.00** *139.00* *102.00* *140.00* **110.00** *170.00* **92.00** *126.50* **127.50** *135.00* *127/134e* *86.00* *72.50* **95.00** *115.00*	**$81.00** **102.00** *130.00g* **95.50** *105.00* **105.00a** *125.00* **116.00** *120.75* **118.00** *130.00* **145.00** *140.00* *102.00* *140.00* **125.00** *170.00* **96.00** *126.50* **127.50** *135.00* *128.00e* *86.00* *72.50* **95.00** *118.00*	**$79.00** **112.00** *135.00g* **100.50** *105.00* **105.00a** *125.00* **111.00** *122.00* **110.50** *113.50* **103.00** *109.00* **65.00** *123.00* **118.00** *130.00* **145.00** *160.00* *121.00* *175.00* **125.00** *143.00* **98.00** *139.00* **127.50** *160/170* **117/137** *136/158* **110.00** *130.00* **131.00e** *190.00a* *107.00* *85.00* **95.00** *140.00*	..... *$143.00* ..... *105.00* ..... *126.00* ..... *136.00* ..... *126.00* **130.00** *150.00* ..... *190.00* *180.00* *121.00* *175.00* ..... *143.00* **120.50** *139.00* ..... *168/175* **117/137** *136/158* **123.00** *145.00* *190.00a* *116.00* *95.00* **107.00** *140.00*	..... *$143.00* ..... *105.00* ..... *128.00* ..... *136.00* ..... *126.00* **128.00** *150.00* ..... *190.00* *180.00* *121.00* *175.00* ..... *143.00* **128.00** *139.00* ..... *165/175* **117/137** *136/158* **130.00** *145.00* *190.00a* *116.00* *95.00* **107.00** *130.00*	**$170.00** ..... **120.80** .... **139.00** ..... **131.75** .... **128.00** .... **105.00** ..... **152.00** ..... **214/224** ..... **120.00** **107.00**	**$185.00** **25.92** ..... **165.80** ..... **25.92** **22.45** ..... **25.00** ..... **16.56** ..... **16.61ab** **19.89** ..... **105.00** ..... **150.00** ..... **214/224** ..... **130.00** ..... **18.72** **12.22**	**$22.32** **25.92** ..... **21.78** ..... **25.92** **22.45** ..... **13.92** **25.00** ..... **16.56** ..... **16.61ab** **19.89** .... **18.72** ..... **25.92** ..... **18.72** **12.22**	**$27.24** **31.60** ..... **26.58** ..... **31.60** **27.37** ..... **16.98** **30.48** ..... **20.16** ..... **20.25ab** **24.25** .... **22.80** ..... **31.60** ..... **22.80** ..... **14.91a** ....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to constr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. *a Spruce. *b Tax exempt. *c 5M lots. *d 8, 10, & 12 ft. lengths. *e 8 to 16 ft. lengths. *g No. 1 common. *j 8ft. lengths. *k No. 3 common. *n #3. A incl rail rate from North west mills to San Francisco are $11.50 to $15.00 per M ft. bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Interior Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅜", $170.00; on ¾", $191.00. Exterior ⅜", $190.00, ¾", $212.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a Lower rate by water shipment. *b 50,000 lb. minimum.

GLASS, EXPLOSIVES, CHEMICALS

WINDOW GLASS

Discounts from jobbers list, Feb. 1, 1950a
Single or Double Thickness

	A quality	B quality
Atlanta	79%	80%
Baltimore	78%d	80%d
Birmingham	82%	83%
Boston	72–10%	72–10%
Chicago	74%	74%
Cincinnati	76%	76%
Cleveland	74–10–10%	74–10–10%
Dallas	75%	75%
Denver	73%	73%
Detroit	74–10–10%	74–10–10%
Kansas City	76–10%	76–10%
Los Angeles	71%	78%
Minneapolis	73–10%	73–10%
Montreal	40–10–5%bc	40–10–5%b
New Orleans	78%	79%
New York	80%	80%
Philadelphia	77%	79%
Pittsburgh	78%	78%
St. Louis	80–10%	80–10%
San Francisco	61%	60%
Seattle	73%	76%

EXPLOSIVES

Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*

Atlanta	$0.2465
Baltimore	.2465
Birmingham	.1915
Boston	.2465
Chicago	.2465
Cincinnati	.2465
Cleveland	.2865
Dallas	.2540
Denver	.2515
Detroit	.2465
Kansas City	.2515
Los Angeles	.2490
Minneapolis	.2515
Montreal	22.05h
New Orleans	.2515
New York	.4125g
Philadelphia	.2465
Pittsburgh	.2465
St. Louis	.2515
San Francisco	.2465
Seattle	.2490

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S. $1.75 per 100 lbs. higher in Canada.

Glass: *a Jobbers' list price per box, 14 x 20, as, $42.75 for A quality, $37.80 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b Discount from list, Apr. 1951; sales tax included, but 3% tax exemption not allowable for. *c Single thickness. *d Discount 8/15/52. *e Discount off. 12/31/54.

Explosives: * Cartridges of 1¼", 1½", 1¾", 2", 2¼", 2½", 3" diameters. Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h F.o.b Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.80

40% Ammonia Gelatin price ranges in other than urban areas, per lb.
(except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.1915	$0.2265	$0.2465
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.1965	.2315	.2515
Rocky Mtn. States	.1965	.2315	.2515
Pacific N. W. States	.1940	.2290	.2490
Pacific S. W. States	.1915	.2265	.2465

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.55	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.—3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.78/.88	.93
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.83/93	.94
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:

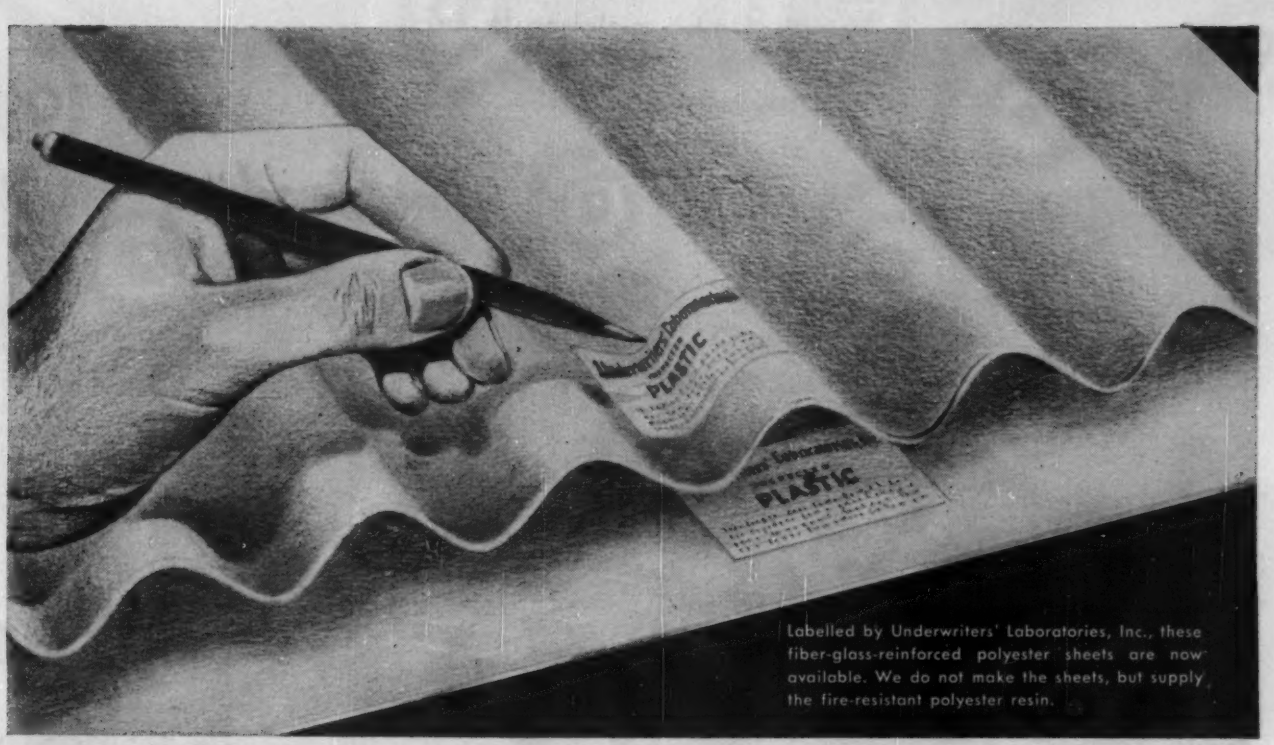
		6" x 8" x 8' Untr.	6" x 8" x 8' Tr.	7" x 8" x 8'6" Untr.	7" x 8" x 8'6" Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak	....	3.45a	....	4.30a
New York	S. L. Sap Pine	2.00	4.00	3.00	5.00
	Mixed Oak	2.50	4.50	3.50	5.50
Philadelphia	Red Oak	2.95/3.70	4.50/5.75	3.58/3.90	5.50/5.75
St. Louis	White Oak	2.50	....	2.80	....
	Red Oak	2.40	z.95a	2.65	3.30a
	Sap Pine or Cypress	....	2.85a	....	3.25a
San Francisco	Douglas Fir	2.25ef	3.10ef	3.25bf	4.75caf

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* f.o.b. cars. * Add 75¢/tie freight charge to Birmingham.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.103
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	29.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.70
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	14.90



Labelled by Underwriters' Laboratories, Inc., these fiber-glass-reinforced polyester sheets are now available. We do not make the sheets, but supply the fire-resistant polyester resin.

FIRE-RESISTANT *polyester windows*

Get maximum window life, safety with these strong, nonshattering sheets made from glass reinforced HETRON® resin.

If building codes have stopped you so far from using polyester-fibrous glass daylighting, you can in all likelihood meet code requirements with *this* sheet.

It gives you *fire-resistant* polyester windows, skylights, roofs, and partitions. It costs less to install than conventional windows, because it goes on in big sheets, without special framing or calking. It lets diffused daylight in, reducing the need for artificial lighting. It cuts window maintenance, because it *won't shatter*—lasts for years.

Light stabilized HETRON resins now make it possible for you to obtain these panels with a high degree of weathering resistance.

The sheet material pictured here is called "Fire-Snuf." It comes to you with a *specific flame spread rating*. It is listed and labelled by Underwriters' Laboratories.

Sheet like this, made of HETRON resin, will burn only when a hot flame is directly applied to it. It "snuffs out" as soon as the flame source is removed.

It tests well within the range of "fire-retardant" and "slow burning" material classifications, as established by Building Officials Conference of America. These classifications form the basis for many local building codes.

Other reputable fabricators also offer sheets made from HETRON resins. Write us for their names and addresses.

FIRE-RESISTANT SHEET for windows, skylights, roofs, and partitions is made by Resolite Corp., Zelienople, Pa. We supply the fire-resistant HETRON resins from which the sheet is made.

1905—Half a Century of Chemicals

From the Salt of the Earth—1955

HOOKER ELECTROCHEMICAL COMPANY

28 UNION STREET, NIAGARA FALLS, N. Y.

NIAGARA FALLS • TACOMA • MONTAGUE, MICH. • NEW YORK • CHICAGO • LOS ANGELES

HOOKER CHEMICALS

5-1756

GEORGIA BAPTIST HOSPITAL, Edwin B. Peel, Administrator
Stevens and Wilkinson, Architects
Henry C. Beck Company, Contractor

SAFETY with an 18.7% annual return!

Effective protection against fire can be achieved with an automatic sprinkler system. Records of the National Fire Protection Association for a 10 year period reveal not one loss of life in 160 fires in hospitals having sprinklers. Contrast that with *unsprinklered* hospitals. Here, the record is shocking. Of 58 fires in *unsprinklered* hospitals, there were 226 deaths.

In an address before the 1954 session of the Southeastern Hospital Conference, the following statement was made by Mr. George E. Linney, Assistant Administrator, Georgia Baptist Hospital, Atlanta.

"Early in 1947 the Georgia Baptist Hospital installed a Grinnell Sprinkler System in its surgical building (now the west wing of the main building), also a similar system in a large nurses' residence. In 1952 the service building, including a warehouse, laundry, and repair shops, was protected by Grinnell Sprinklers. *The reduction in fire insurance was gratifying.*"

Mr. George E. Linney
Assistant Administrator
Georgia Baptist Hospital, Atlanta

For example (the figures are Mr. Linney's) . . .

Total Area Protected	Cost of Sprinkler Systems	Annual Savings in Insurance	System pays for itself in
108,000 sq. ft.	$27,792	$5,205.49*	5.34 years
*Represents 18.7% annual return on investment in Grinnell Sprinkler protection.			

Mr. Linney adds . . . "Sprinkler installers cooperated to minimize disruption in daily routine. 'Business as usual' was carried on during the installation of the system."

Other hospitals, too, report on both the efficiency of Grinnell Sprinklers, and Grinnell installation crews. Why delay getting the complete facts? Grinnell will gladly outline a fire protection program for you, without obligation. Write Grinnell Company, Inc., 258 West Exchange Street, Providence, Rhode Island.

GRINNELL
PROTECTION AGAINST EVERY FIRE HAZARD

Manufacturing, Engineering and Installation of Automatic Sprinklers Since 1878

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$139.75p	$139.75p	$279.55p	$314.45p	.....	.....	$30.00p	$30.00p	.....	.....	.....
Baltimore	202.00	214.00	404.00	458.00	594.00	679.00	36.00k	41.00k	33.00	21.50	.....
Birmingham	126.00p	142.00p	253.00p	284.00p	354.00p	438.00p	27.00ff	32.00gg	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	283.75†	.....	.....	36.85p	40.35p	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	28.00	30.00	36.00	29.00	.....
Cincinnati	205.00j	215.00j	295.00jdd	.....	.....	.....	45.00j	46.00j	27.50j	27.50j	.....
Cleveland	187.50**	200.00**	.....	.....	.....	.....	39.75	39.75	29.75	24.75	33.50ee
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	32.00	21.50	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80ll	25.00ll	34.00ll
Detroit	189.00	201.00	377.00	.....	551.00	630.00	40.50cc	41.00cc	36.00	32.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	29.25	29.25	32.00	27.50	28.50
Los Angeles	r	r	r	r	r	r	27.50§	.....	34.00	34.00	35.00
Minneapolis	181.00p	201.00p	414.00p	201.00pv	.....	.....	41.00*p	47.00	42.00hhe	32.00hhe	44.00hhdd
Montreal	165.00aq	181.00au	325.00au	230.00	248.00	.....	39.50	46.00	39.20	22.00	13.75ss‡
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	25.00	28.00
New York	151.90h	162.00h	222.70eh	245.40hn	.....	.....	41.00	.....	36.00	34.00	.....
Philadelphia	156.30	166.80	312.70	375.20	.....	.....	30/34	34/40	27.60	25.60	3.17
Pittsburgh	138.00	156.00	260.00	228.00	297.00	341.00	36.00	46.00y	25.00	23.00	2.97m
St. Louis	160.50cc	168.50cc	338.25cc	465.00cc	.....	621.50	41.50el	43.00s	.95aaa	.75aaa	1.20aaspee
San Francisco	156.85a*	177.10a*	335.30ddo*	.....	.....	.....	39.50	.....	26.60	26.60	28.25
Seattle	225.00cc	250.00cc	350.00cc	260.00ccw	.....	.....	42.00ss	54.00s	42.00ahh	37.50hh	3.90mhh
Toronto	138.70	148.90	273.75	222.00f	.....	.....	41.50	59.00	40.50	33.50	30.00

*† F.o.b. yard Roxbury. *a Smooth. *b Per 80 lb. bags. *c 6 x 12 x 12 in.-3 cell. discount for cash. *t 5½ x 8 x 11¼. *u Tax exempt. *v Sand lime. *w 5 x 8 x 12. *y Stacked. *z Pebble lime price per 80 lb. sack. *aa Price per sack. Lime not sold per ton. *bb LCL. *cc Truck delivery. *dd 6 x 12 x 12. *ee Pebble face. *m Per bbl., 180 lb. *n 7½ x 7½ x 12. Speed title. *p Truck lots. *q Provincial and Municipal tax extra. *r Not used because of earthquake danger. *s 2% delivery. ** F.o.b. Stockton.*

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases in oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$18.25	$28.275	$3.26	$3.51	$3.01	$3.10	$2.91	$2.91	$0.60	$55.00
Baltimore	18.00	27.90	2.75	4.25	3.35	2.78	4.25	4.25	.48	50.18
Birmingham	18.25	28.275	3.90	3.40	....	2.78	2.55	2.55	.75ff	33.50ee
Boston	18.00	27.90	....	....	....	2.86q	2.66aq	2.66aq	.45p	50.50y
Chicago	18.00	27.90	....	....	....	2.77½u	2.49½o	2.65½o	42.00¼kr	50.50½
Cincinnati	18.00	27.90	....	....	....	2.88	2.60	2.60	.55y	49.36
Cleveland	18.00	27.90	2.21ppv	2.82pg	2.62pg	2.88q	2.60o	2.60o	.43y	42.70hh
Dallas	18.25	28.65	....	4.05	....	3.50q	3.75o	4.35o	.38	58.50hh
Denver	18.50	28.40	3.29	5.15	3.04	2.53	1.90o	2.60o	.48ff	45.00
Detroit	18.00	27.90	2.35	3.25	2.50	2.53	2.28f	2.28f	.55	46.09
Kansas City	18.00	28.65	3.50	3.00gu	2.65	2.45	2.27o	2.27o	.37	54.52
Los Angeles	18.00	28.15	3.30n	4.50n	4.20n	3.10n	2.25en	l	.64ny	l
Minneapolis	18.00	29.88/28.02	....	....	....	2.53dd	2.28hidd	2.28hidd	.48idd	44.00r
Montreal	.....	21.95	2.95Dff	4.05Eff	3.35Fff	4.05t	3.60f	3.60ft	1.00kt	3.60kF
New York	18.00	27.90	....	....	....	2.53G	2.28Go	2.28Go	.45Go	44.00*
Philadelphia	18.00	27.90	3.60	3 40/3.65	3.50/4.60	2.54	2.94	2.94	.37	26.00
Pittsburgh	18.00	27.90	2.68	2.85	3.15	2.88	2.72o	2.72o	.43	54.00
St. Louis	18.00	27.90	....	....	....	2.38	2.15h	2.28h	.43y	51.25
San Francisco	18.00	28.15	2.40	....	3.40	2.79	4.00aa	....	.43	.....
Seattle	18.00	28.40	3.07mcc	2.93mee	....	3.45mqee	2.91kmee	....	.59mee	52.00mee
Toronto	.....	.....	....	....	....	4.45	4.10	....	1.60	85.00

*‡ Delivered. * Note: Red lead in oil 50¢ higher than white lead in oil. *a Red lead prices change frequently due to pig lead price changes. *b U. S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e 15 lb. *f Per 432 sq. ft. *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload lot prices: Minneapolis and vicinity. *k Per cwt. *l Not used. *m 1% discount for cash. *n F.o.b. city. *o Per 60-lb. roll. *p 5-drum, 50 gal. ea. *q Per 90-lb. roll. *r F.o.b. factory, Chicago. *s 408 Med. *t Federal tax included, add 8% mun. & prov. tax. *u Per 90-lb. square. *v Per ton. *w Price to large paint contractors is $1.25 less. *x Mineral surfaced. *y 55-gallon container. *z Drums. *aa Approximate cost per 100 lbs. *bb Roofers coating and cement; Price per ton. *cc LCL, truck delivery. *dd 2% cash discount. *ee Asphalt pitch in 100 lb. package. *ff 5-gal. drums. *gg F.o.b. factory. *hh Incl. freight. *D Std. Black. *E Ready-mixed. *F Over 80% ferric oxide. ** Aver. wt. approx. 425 to 550 lbs. drums. *G Freight absorbed to destination not over .35 cwt.*

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER† Neat per ton	Gauging per ton	VERMICULITE† Home Insulation pellets	Plaster aggregate	Concrete AGGREGATE‡ Treated	Untreated (per bag of 4 cu ft)	ALUMINUM SHEET‡ Flat/ .102" th 36"x96" & 48"x144" per lb‡	Corr roof .032" th 35"x12' per shu	STAINLESS STEEL SHEET*-TYPE 302g 20 ga 48"x96-120" per cwthh	28 ga 36"x120" per cwtmm	COPPER WATER TUBING-TYPE L 2000 ft lots per ft‡ ½"b	½"c
Atlanta	$29.00	$36.00	$1.45*	$1.35*	$1.50*	....	$0.350n	$7.067n	$53.68*	$61.18*	$14.40f	$20.29f
Baltimore	21.50	32.00	0.95	1.15	....	$1.15	0.301	0.427r	56.25	64.25	0.21	0.30
Birmingham	36.00	43.00	1.55	1.55	1.75	....	0.437	9.07	55.68	65.68	0.2609	0.3193
Boston	21.00	.....	1.15	1.18	....	1.30	0.44p	36.15op	55.81dd	61.585ddff	0.1857	0.2609
Chicago	25.20	25.20	1.55	1.60	1.60	....	0.43o	8.892fp	57.55fee	65.55fee	0.1857	0.2609
Cincinnati	21.60*o	21.60*o	1.75	1.75	1.85	1.75	0.400	8.34	57.60	69.30ff	0.1726	0.2430
Cleveland	26.00	40.00	1.25	1.32	1.40	....	0.360aa	7.569	58.25	63.25	20.63f	25.86f
Dallas	29.80	31.80	1.20	1.25	1.30	....	0.379	0.439r	55.00	63.00	0.1449	0.2029
Denver	24.00	24.00	1.45	1.35	....	1.50	0.437	8.89	57.32gg	65.32gg	0.1773	0.2496
Detroit	24.00	24.00	1.32	1.33	1.42	1.42	0.415	8.892	57.90	65.80	17.00fee	29.83f
Kansas City	30.00	35.00	1.30	1.30	1.40	....	0.416	9.94	60.72ee	68.72ee	21.07f	29.60f
Los Angeles	25.00	26.00	1.25ii	1.20ii	1.45ii	1.25ii	0.44	9.04	64.50	72.50	0.1857	0.2600
Minneapolis	31.00	31.00	1.30	1.60	....	1.80	0.43	7.85	58.26	71.01ff	0.1857d	0.2609d
Montreal	28.80	33.20	1.00	1.30	1.35	1.30	0.372	8.25	62.75	.....	0.26	0.320
New Orleans	35.00	37.00	1.50	1.20	1.25	1.25	0.359	0.366mhh	57.18	65.18	0.1449	0.2029
New York	23.00	29.00	1.25	1.20	1.40	1.30	0.43foo	8.50f	58.42	66.42	18.57f	26.09f
Philadelphia	23/25	32.00	1.35	1.35	1.35	1.40	26.50fuz	7.55f	53.23f	60.98f	14.40f	20.29f
Pittsburgh	27 50	31.00	1.30	1.30	1.35	1.30	0.42	9.19	56.81	62.63	0.1923	0.2437
St. Louis	30.00	37.00	1.25	1.50jj	1.60jj	1.50	0.45io	8.89e	56.64kk	75.64kk	16.81fm	23.63fm
San Francisco	24.00	26.00	1.05	1.03	....	1.24	0.416	8.14cc	71.85	.....	0.1773	0.2496
Seattle	33.00	36.50	1.45	1.25k	1.65	....	0.369	7.569	64.75ee	72.75ee	0.1449	0.2029
Toronto	32.50	40.00	1.20	1.45	1.45	1.35	0.38	20.55	58 80	92.40	0.3131pp	0.3937pp

*† truckiots, delivered * carload ‡ delivered *a fob city *b ½" O.D. *c ⅝" O.D. *d 10M ft & over *e 2-10M ft; 10M ft & up: $0.1925/ft *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled; 2B finish *h 15M lb *i 3003 alloy; 1100 alloy: $0.456/lb *j 1100 & 3003 alloy, mill finish *k per bag of 3 cu ft *l treated has air entraining agent; untreated does not *m 2-10M ft *n fob plant, fr allow *o 5M lb & up *p 100 sq ft quantity *q 2M lb quantity *r per lb *s 30/ bag *t 36" x 96;- 10.81 lb/sh; 48" x 144":21.7 lb/sh *u 19.31 lb/sh *v in 4M-lb skids; $0.256/lb in 1M-lb cases *w 48" x 144" *x 36" x 96" $13.25/sh *aa 15M lb & up *bb fob mill *cc 26" x 8-12' *dd add $0.75/cwt for boxing *ee 4 tons & up *ff 26 ga *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 50.4-lb. per sh. *ii 300-bag lots *jj per 100-lb bag *kk mill shipment; add $2 per cwt for immediate del *mm Theoretical wt: 19.7-lb per sh *nn Deliv, warehouse means *oo ½" O.D. *pp Incl 10% sales tax*

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	¾"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION† loose, per 40-lb bag a	3" batts per M sf	GLASS FIBER INSULATION† loose, per 40-lb bag a	3" batts per M sf	ALUMINUM FOIL 60¢ Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq.ft
Atlanta	$75.00	$65.00	$45.00	$75.00	$75.00	$125.00	$75.00	$1.08	$75.00	$1.45[b]	$85.00	.....	.....
Baltimore	$49.25[f]	43.50[f]	31.30[f]	53.00[f]	65.00[f]	108.50[f]	69.00[f]	1.30	66.50	1.60	45.00	$4.00[g]	$33.50
Birmingham	67.00	56.00	46.75	75.00	73.50	124.00	72.50	1.32	70.00	1.60	80.00	3.39[g]	.....
Boston	46.50[m]	41.00[m]	31.50[m]	48.00[m]	64.00[m]	109.00[m]	79.00[kn]	1.45	75.00	1.40	56.00	5.80	54.80
Chicago	67.00	60.00	41.00	57.00	80.00	120.00	80.00	1.70	82.00	....	63/65[b]	5.25	....[t]
Cincinnati	46.40[w]	41.60[w]	30.80[w]	45.81[w]	65.00[w]	110.00[w]	65.00[w]	.....	61.00	1.25	75.00	2.81	50.00[w]
Cleveland	60.00	60.00	40.00	60.00	70.00	111.00	70.00	1.35/1.50	75.00	2.20	82.00	7.76[dj]	.....
Dallas	55.00	52.50	40.00	62.50	73.50	122.50	70.00	1.90	65.00	1.35	65.83	4.25	.....
Denver	60.00	52.50	40.00	60.00	72.90	123.00	71.90	....	71.00[s]	1.47	55.00	11.00[r]	21.00
Detroit	55.00	48.50	35.75	56.00	55.50	95.00	56.00	....	.....	1.95[b]	77.25	....	.....
Kansas City	65.00	55.00	40.00	65.00	72.00	120.00	75.00	1.40	80.00	1.40	80.00	15.45[dt]	25.75
Los Angeles	57.50	50.00	0.31[z]	57.50	71.87	121.25	80.00	....	83.00	1.35[e]	64.00	4.20[g]	.....
Minneapolis	72.00	63.00	0.40[z]	80.00	70.00	114.00	70.00	1.30	78.00	1.30	78.00	6.50	.....
Montreal	60.00	52.00	36/39	53.00	60.00	.....	62.00	1.00	62.00	1.00	62.00	20.00[u]	50.00
New Orleans	65.00	50.00	45.00	65.00	65.00	100/115	70.00	1.95	79.00	....	.....	15.66[u]	.....
New York	50.00	44.50	34.00	51.00	60.00	109.00	70.50	1.55	69.00	1.90[b]	72.00	5.20	48.80[cc]
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	....	63/70	....	70/75	5.50/6	34.50/44.50
Pittsburgh	68.00	57.00	42.50	70.00	70.00	108.00	65.00	1.90	72.00	1.90	72.00	4.10	.....
St. Louis	65.00	55.00	39.00	65.00	75.00	120.00	70.00	1.80	85.00	1.30	69.00	5.50	.....
San Francisco	50.00[c]	43.75	0.33[z]	54.00[k]	58.00	94.00	56.00	1.60	66.50	1.55	66.50	4.82	52.50
Seattle	57.50	50.50	40.00	59.00	71.40	120.35	70.20	1.50[y]	81.00	1.65[aa]	62.00[aa]	4.25[g]	.....
Toronto	61.00	50.00	40.00	64.50	75.00	.....	.....	0.90	47.00	....	51.00	15.25[o]	39.50

[a] for hand packing [b] per 30# bag [c] carloads [d] 40# kraft paper [f] full trailer loads [g] 80# kraft paper backing [h] LCL [i] flameproof $75.00 [j] 133 lin ft; per 100 roll [k] plain core; asph core $56/M sq ft [m] 10 ton quantities [n] distributor's siding [o] per Msf roll [p] per sf [r] per cwt [s] per 35# bag [t] per M sq ft [u] honeycomb, 1¼-in [w] fob city [x] per sq. yd. [y] 25# bag [z] 32# bag [aa] fob warehouse [bb] 2" [cc] in 250 sf rolls, of 16", 20", or 24" width.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.25	$2.60	$2.95	$2.70	$2.875	$3.00	$3.15[d]	$1.38	$1.38
Baltimore	3.20[d]	2.925	3.325[t]	2.55/2.80Q	3.075[t]	3.075	3.075[t]	1.675[t]	1.675[t]
Birmingham	3.50	2.60	3.00[k]	2.42	2.82	3.075	3.125[k]	1.45	1.55
Boston	3.35[r]	2.925[k]	3.475[k]	3.40	3.45[l]	3.23[R]	3.30[d]	2.22[Y]	2.22[Y]
Chicago	3.625[k]	3.375[r]	3.50[k]	3.225[m]	3.625[g]	3.53[f]	3.44[oo]	2.575[k]	2.575[k]
Cincinnati	3.45	3.15	3.275[k]	2.925/3.175	3.225	3.41[N]	3.445[T]	2.20	2.10
Cleveland	3.45[k]	3.40	3.40[k]	3.40	3.40	3.425	3.40[d]	2.65	2.65
Dallas	3.625	2.875	2.95	2.95[b]	3.437	3.00	3.185[bb]	1.50	1.50
Denver	3.50	2.975	2.97[5t]	2.83	3.375[t]	3.00	3.20[D]	1.925	1.925
Detroit	3.58[re]	3.324[q]	3.475[P]	3.30[ex]	3.49[el]	3.655[H]	3.37[k]	2.55[ex]	2.55[e]
Kansas City	3.625	2.85	3.00	3.045	3.325	3.18[O]	3.225[k]	2.105	2.13
Los Angeles	3.60	3.00[d]	3.325[b]	2.91[d]	3.75[S]	3.45	3.44[d]	2.275[k]	2.275[k]
Minneapolis	3.325	2.90	3.07	2.85	3.18[G]	3.29[n]	3.075[k]	2.15	2.15
New Orleans	3.175	2.60	2.975[b]	2.80	2.80	3.10[k]	3.10[x]	1.475	1.475
New York	4.15[br]	3.75[bJ]	4.075[p]	3.99[J]	4.35[A]	3.66[nF]	3.978[bL]	2.592[V]	2.592[V]
Philadelphia	3.92[t]	3.30	3.73[jM]	3.17/3.92[r]	3.65[C]	3.80[ns]	3.615[g]	2.025	2.325
Pittsburgh	3.725[k]	3.275[k]	3.375[k]	3.425[k]	3.575[k]	3.50	3.50[k]	2.175[k]	2.08[d]
St. Louis	3.625[c]	3.225[A]	3.225[k]	3.225	3.50[k]	3.60[c]	3.50[E]	2.275[k]	2.275[k]
San Francisco	3.75[e]	3.15[e]	3.35[e]	2.95[e]	3.66[e]	3.35[U]	3.56[K]	2.275[e]	2.275[e]
Seattle	3.50[d]	2.76[d]	3.07[d]	3.00[d]	3.25[d]	3.235[X]	3.31[T]	2.35[d]	2.35[d]
Montreal*†	2.10	1.90	2.00	1.80	2.12	2.10	2.12	1.30	1.30
Toronto**	2.558	2.392	2.39	2.45	2.496	2.60	2.54	1.40	1.40

* Cost of living bonus now included in basic wage. † Plus 8% fringe benefits ** Incl. 4% vacation fund. [a] 6 hr. day. [b] 7 hr. day. [c] Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. [d] Incl. 10¢ H&WF. [e] Incl. 10¢ VF. [f] Incl. 6% WF. [g] Incl. 11½¢ WF. [h] $2.85 homes & housing plus 7½¢ WF. [i] Incl. 17¢ WF. [j] Incl. 10½¢ hr. WF. [k] Incl. 7½¢ hr. WF. [l] Incl. 4% VF [m] Incl. 5¢ hr. WF. [n] Incl. 8¢ H&WF, 6% VF, 1% PF. [o] Incl. 10¢ PF. 7¢ WF. [p] Incl. 3% WF, 3% PF. [q] Incl. 10¢ ins; 4% vac. and holiday pay. [r] Incl. 4% WF and 20¢ PF. [s] Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. [t] Incl. 7½¢ H&WF. [u] Incl. 1½% PF. [v] Incl. 10¢ WF. [w] Negotiating. [x] 5¢ VP. [y] Incl. 22½¢ WF. [z] Incl. 7½¢ IF, 5¢ H&WF. [A] Incl. 15¢ WF, 15¢ PF, 20¢ B.F. [B] Incl. 3% WF. [C] Incl. 15¢ WF. [D] Incl. 10¢ H& WF, 5¢ organ. [E] Incl. 6% WF, plus travel pay per day. [F] Plus $4 per day Annuity contrib. [G] Incl. 3¢ Prom. [H] Incl. 7¢ WF, 6% VF. [I] Incl. 15¢ H&WF, 5¢ for Advtg. [J] Incl. 5% WF, 6 PH. [K] Incl. 11¢ WF, 12½¢ VF, 10¢ PF. [L] Incl. 3% WF, 3% PF, 2% VF, 1% EF. [M] Incl. 7½¢ PF. [N] Incl. 1% WF. [O] Incl. 10¢ WF, 1% PF. [P] Incl. 10¢ hosp. ins.; 5¢ vac. [Q] 1 drum, 2 drums $ 3.25/3.40. [R] Incl. 12¢ WF and 1¢ apprentice. [S] Incl. 12½¢ H and WF. [T] Incl. 21¢ H, W & VF. [U] Incl. 7½¢ WF, 4% VF. [V] Incl. 5% WF, 3% PF. [W] Incl. 2% F. [X] Incl. 6¢ VF, & 7½¢ H & WF. [Y] Incl. 7¢ H & WF. [Z] Incl. 9½¢ WF. [aa] Incl. 7¢ WF, 15¢ PF. [bb] Incl 8¢ WF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Oct. '55	Nov. '55
Common Wages—Building (8 hr. day) (Pesos)	av. per hr.	1.19	1.19
Common Wages—Heavy Const. (8 hr. day) (Pesos)	av. per hr.	1.19	1.19
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day) Remachadores.	av. per hr.	1.37*	1.37*
Struct. Steel Shapes 3"–15" x 12 meters	per metric ton	1564.50	1564.50
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1564.50	1564.50
½" x 11 meters	per ton	1564.50	1564.50
⅝" x 11 meters	per ton	1564.50	1564.50
¾" x 11 meters	per ton	1564.50	1564.50
⅞" x 11 meters	per ton	1564.50	1564.50
1" x 11 meters	per ton	1564.50	1564.50
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	70.00	70.00
Rose Gravel	per tr. load	65.00	65.00
Cement, Std. Port. (Tolteca)	per ton	185.00	185.00
Lumber			
3rd Class Pine	per M ft.	1400.00	1400.00
1st Class Pine	per M ft.	2100.00	2100.00
2nd Class Pine	per M ft.	2000.00	2000.00

* 1st & 2nd floors. Aver rate 4.38

ENR Skilled Average (Bricklayers, Carpenters Iron workers): $3.290. ENR Common Average $2.097

EQUIPMENT OPERATOR WAGE RATES

	Truck drivers 1½ T	Truck drivers —4 cy Dump	Truck drivers +4 cy	Tractor Operators incl bulldozers 34–40 hp	Tractor Operators incl bulldozers 70–100 hp	Tractor Operators incl bulldozers 100 & over	Tractor scraper 15–16 cy	Power cranes & shovels ½ cy	Power cranes & shovels ¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.50[pp]	.....	.....	$2.425	$2.425	$2.425	$2.425	$2.95	$2.95	$2.425	$2.20	$1.60
Baltimore	1.675[u]	1.825[u]	1.925[u]	2.85/3.00[b]	2.85/3.00[b]	2.85/3.00[b]	2.85/3.00[b]	3.25/3.40[b]	3.25/3.40[b]	2.85/3.00[b]	2.85/3.00[b]	2.25
Birmingham	1.59	1.85[ff]	1.92[gg]	2.56	2.56	2.56	2.70	2.70	2.70	2.61	2.285	1.625]
Boston	1.945[c]	.....	.....	3.025[d]	3.025[d]	3.025[d]	3.025[d]	3.40	3.40	3.40	2.555	2.22[e]
Chicago	2.12[fii]	.....	.....	2.90[ag]	3.05[ah]	3.10[ai]	2.90[a]	3.50[a]	3.50[a]	3.00[a]	3.00[a]	....
Cincinnati	2.10[oo]	2.20[oo]	2.30[oo]	2.925	2.925	2.925	2.925	3.175	3.175	3.175	3.175	3.175
Cleveland	2.42[m]	2.42[m]	2.42[m]	3.15	3.15	3.15	3.15	3.40	3.40	3.15[k]	3.025	3.025
Dallas	1.50	1.50	1.50	1.50/2.625[l]	1.50/2.625[l]	1.50/2.625[l]	1.50/2.625[l]	1.50/2.625[l]	1.60/2.625[l]	1.60/2.625[l]	1.50/2.00[l]	1.50/1.55[l]
Denver	2.05	2.05	2.15	2.05	2.66	2.66	2.66	2.83	2.83	2.66	2.66	2.275
Detroit	2.35[oo]	2.35[oo]	2.35[oo]	3.30[m]	3.30[m]	3.30[m]	3.30[m]	3.30[m]	3.30[m]	3.30[m]	3.025[m]	2.68[m]
Kansas City	2.065[n]	2.065[o]	2.14[p]	2.25	2.80[q]	2.80[q]	2.80[r]	3.045	3.045	2.66	2.80[t]	2.19
Los Angeles	2.38[u]	2.38[u]	2.41[u]	2.96[m]	2.96[m]	2.96[m]	3.34[m]	3.16[m]	3.16[m]	3.12[m]	2.59[m]	2.485[u]
Minneapolis	2.15	2.15[y]	2.30	2.53	2.75[q]	2.97[z]	2.75	2.97[y]	3.23[z]	2.53	2.42	2.25
New Orleans	1.575	1.575	1.575	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.15	1.575
New York	2.12½[aa]	2.52[bb]	2.52[bb]	3.33[cc]	3.33[cc]	3.33[cc]	3.465[cc]	4.25[cc]	4.25[cc]	3.465[cc]	3.465[cc]	2.94[cc]
Philadelphia	1.90/2.10[u]	1.90/2.10[u]	1.90/2.10[u]	3.17/3.92[m]	3.17/3.92[m]	3.17/3.92[m]	3.17/3.92[m]	3.17/3.92[m]	3.17/3.92[m]	3.17/3.92[m]	2.99[m]	2.15[m]
Pittsburgh	2.275[u]	2.275[u]	2.275[u]	2.95[u]	3.275[u]	3.325[u]	3.325[u]	3.425[u]	3.425[u]	3.325[u]	3.325[u]	2.275[u]
St. Louis	2.275[unn]	.....	.....	3.225[kk]	3.225[kk]	3.225[kk]	3.225[kk]	3.225[kk]	3.225[kk]	3.225[kk]	2.675[kk]	2.2675[kk]
San Francisco	2.30[u]	2.30[u]	2.315[u]	3.07[m]	3.07[m]	3.07[m]	3.07[m]	3.40[m]	3.40[m]	3.23[m]	2.68[m]	2.40[m]
Seattle	2.60[nu]	2.60[ndd]	2.80[nee]	2.75[m]	2.95[m]	2.95[m]	2.95[m]	3.30[m]	3.30[m]	3.05[m]	2.75[m]	2.62[m]
Montreal ‖	1.30	1.30	1.30	1.73	1.73	1.73	1.73	1.99	1.99	1.73	1.80	1.60
Toronto	1.51[ii]	1.51[ii]	1.72[ii]	1.98[ii]	1.98[ii]	1.98[ii]	1.98[ii]	2.45[ii]	2.45[ii]	....	2.13[ii]	2.13[ii]

[a] Incl 8¢/hr HWF [b] lower rates, straight time, other broken [c] 2-axle; 10-wheel $2.00; Euclid $2.20 [d] intermediate [e] bldg constr; highway $2.145 [f] less than 2-t [g] blade [h] scoop, bldg [i] scoop, road [j] plus $2 pd by employer for hosp. death benefits to family [k] bldg constr; steel constr $3.46 [l] higher rates are union, other taken from min wage scale approved by County Commissioners Court [m] incl 10¢ H&WF [n] flatbed [o] under 10 cy [p] over 10 cy [q] over 50 hp [r] blade grader [s] form and subgrade [t] single [u] incl 7½¢ HWF [v] up to 6 cy [w] 6–8 cy [x] cat oper [y] up to 3½ cy [z] 3½ cy & over [aa] plus approx $3.30 per wk W&PF [bb] incl 3% WF, 2% PF, 11 PH [cc] incl 5% WF [dd] up to 5 cy [ee] 5 cy & over [ff] over 1½ T but not incl 3 [gg] over 3 but not incl 5 tons [hh] excavating [ii] incl 4% VP [jj] includes 12¢ H, W & PF [kk] 7½¢ WF included [n] base pay [ll] Plus 8% fringe benefits [nn] 6 cy or less; 8–10 cy $2.075; 10–25 cy $3.125 [oo] Plus $2.25/wk WF [pp] 2–5 T $1.70.

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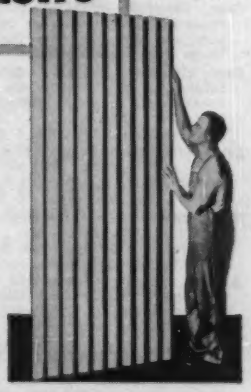

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **Me., Brunswick**—THEATER—BA 12/16—First Naval Dist., 495 Summer St., Boston, theater, U. S. Naval Air Station, NOY 909, 87, Spec. 48711, $200,000. Plans deposit $30. Extended date, Crowell-Lancaster & Higgins and Pedersen & Tileny, 6 State St., Bangor, assoc. archts. CD 11/17.

† **Massachusetts**—BOMBING TARGETS—BA 12/16—First Naval Dist., 495 Summer St., Boston, bombing targets dredging, timber pier, No Man's Island, NOY 90981, Spec. 48707. $160,000. Plans deposit $30. Fenton G. Keyes Assoc., Woolworth Bldg., Providence, R. I., engrs. CD 11/15.

† **Me., Bangor**—DORMITORIES—BA 12/20—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., airmen's dormitories, Dow Air Force Base, ENG-19-016-56-66. $700,000-$800,000. Plans deposit $10. Cram & Ferguson, 248 Boylston St., Boston, Mass., archts. CD 11/18.

Mass., Boston—SHED—BA 12/29—Commonwealth of Mass., Port Boston Comn., c/o Div. Bldg. Constr., 38 Chauncy St., W-703, exten. transit shed, Castle Island, South Boston, $718,000. Plans deposit $50, refundable, Universal Eng. Corp., 150 Causeway St., Boston, engrs. CD 11/13/52.

BUILDINGS—BA

Conn., New Haven—BANK—BA 12/5—Tradesmen's National Bank, 83 Church St., New Haven, glass, brick, limestone bank, Whalley Ave. corner Sherman St. $365,000. Bank Bldg. Corp. of America, 906 Sidney St., St. Louis, Mo., archts.

Mass., Haverhill—SCHOOL—BA 12/16—City, City Hall, Bradford Elementary School, S. Main St. and Laurel Ave. $845,000. Plans deposit $60, Edgar T. P. Walker & Theodore B. Hanna, 131 State St., Boston, archts.

▲ **Mass., Boston**—DEPARTMENT STORE—BA 12/15—Jordan Marsh Co., 450 Washington St., 8 story, bsmnt., sub-bsmnt. Department Store Unit No. 3, Avon St. $3,000,000, Perry, Shaw, Hepburn & Dean, 31 St. James Ave., archts., Maurice A. Reidy, 101 Tremont St., structural engr. CD 6/8/54.

▲ **Mass., Cambridge**—NUCLEAR REACTOR—BA About 12/19—Massachusetts Institute of Technology, 77 Mass. Ave., nuclear reactor bldg. $1,000,000. CD 6/16/54.

▲† **Mass., Ayer**—HOUSING—BA On Or About 12/22—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, family housing, Fort Devens, ENG-19-016-56-69. $2,500,000-$3,000,000. Plans deposit $50. CD 10/12.

BUILDINGS—SLC

Conn., Danielson—GARAGE, etc.—Connecticut Light & Power Co., Berlin, soon lets contract, garage, service bldg. and office, $93,000. Chandler & Palmer, 114 Thayer Bldg., Norwich, archts.

Conn., Hartford—LAUNDRY—Swift's Coat, Apron & Supply Co., 191 Franklin Ave., soon lets contracts 132x292 ft. Laundry, 490-498 Wethersfield Ave. $400,000. Jacob Weinstein, 100 Lowin Ave., New Haven, archt. CD 1/5/54.

Conn., West Hartford—PLANT—Lincoln Dairy Co., 69 Ward Pl., Hartford, soon lets contract plant, New Brotain Ave. $110,000. Buck & Buck, 650 Main St., Hartford, structural engrs. CD 9/19.

Mass., Boston—OFFICE—Remington Rand Div., Sperry-Rand Corp., c/o Coletti Bros., archts., 687 Boylston St., soon lets contract, office, 631-641 Commonwealth Ave. $750,000. CD 11/25.

▲ **Mass., Hanover**—DORMITORY—St. Coletta School, Washington St., soon lets contract, 2 story, steel, masonry dormitory, $1,000,000. John A. McPherson, 250 Huntington Ave., Boston, archt. CD 11/14.

HEAVY CONSTRUCTION—LB & CA

† **Mercury Automatic Fire Alarm Co.**, 17 Magnolia St., Newark, N. J. LB $77,214, est. $75,000. fire alarm syt., Naval Air Station, NOY 90988, Spec. 48712, BRUNSWICK, ME. First Naval Dist., 495 Summer St., Boston, Mass. Bids Nov. 23. CD 11/14.

▲† **Morrison-Knudsen Co. and Landers & Griffin, Inc.**, Gosling Rd., Portsmouth, N. H., LB $2,125,038. taxiway and aprons, Portsmouth Air Force Base, ENG-19-016-56-37, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Nov. 22. CD 11/15.

MASSACHUSETTS — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Mass.—Westcott Constr. Co., 52 N. Washington St., North Attleboro, Mass. LB $186,271, est. $150,000. constr. steel stringer bridge Bridge St. over Blackstone River and approaches, Blackstone;

Mass.—E. T. O'Neil & Son Constr. Corp., 223 Commercial St., Holyoke, Mass. LB $96,808, est. $72,000. bridge work 3 bridges on Feeding Hills Rd., Granville Rd., Southwick;

Mass.—Continental Constr. Corp., 437 Main St., Lynnfield, Mass. LB $89,121, est. $90,000. constr. steel stringer bridge and concrete bridges Loomis Rd. over Munn Brook, concrete bridge on Klaus Anderson Rd. over Tuttle Brook, Southwick. Bids Nov. 16. CD 11/15.

MASSACHUSETTS — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
B & M Constr. Co., Box 287, Hadley, Mass. LB $127,389, est. $108,000. repairs to hys., Burt, East, E. Green, Everett, Glendale, Hendrick, Maher, Mill, Mineral, Oliver Park, River, Strong and West Sts., Easthampton. Blds Nov. 16.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
rejected bids Nov. 8. repairs to abutment and wingwall foundations, etc. Auto Rte. 103, Swansea. Est. $36,000. CD 10/27.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
J. F. Fitzgerald Constr. Co., 1000 Turnpike St., Canton, Mass. LB $649,082, est. $600,000. hy. and bridge Rte. 7, Goodrich St. over N. Y., N. H. & H. R. R. and Konkpot Brook, Stockbridge. Bids Nov. 22. CD 11/1.

Ralph Richard Co., 495 Whiting Ave., Dedham, Mass. LB $134,570, est. $135,000. Contr. 55-1, sewers, force mains, appurtenances, HINGHAM, MASS. Town, Bd. Sewer Comrs., Town Office Bldg., 12 Main St., Hingham, Mass. Bids Nov. 22. CD 11/14.

RHODE ISLAND—State of R. I. & Prov. Plantations, Div. Purchase, State House, Providence,
Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I., LB $990,594, est. $950,000. grading, drainage, etc., Louisquisset Pike Lincoln-North Providence and Providence, Bid No. 368, R. I. Contr. No. 5524. F.A. Proj. V-035 (3). Bids Nov. 23. CD 11/11.

RHODE ISLAND—State of R. I. & Prov. Plantations, Div. Purchase, State House, Providence,
A. Forte & Sons, 14 Whipple St., Cumberland, R. I. LB $124,259, est. $125,000, b. conc. etc. 1.485 mi. Old County Rd.-Dean Ave. to Farnum Pike, Smithfield, Providence Co. No. 365. Bids Nov. 23.

† **Arnold M. Diamond, Inc.**, 114 Middle Neck Rd., Great Neck, L. I., LB, $147,518, est. $50,000-$100,000 combination Sch. A, facilities Middletown, Conn. and New Salem, Mass., ENG-19-016-56-16, CONNECTICUT and MASSACHUSETTS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Nov. 22. CD 11/14.
National Constr. Co., 767 E. 3 St., South Boston, Mass., LB, $79,539, Sch. A facilities New Salem, Mass. (Connecticut-Massachusetts)

Brookside Constr. Co., Inc., 382 Forbes St., East Hartford, Conn., LB $207,552, placement of embankment, east bank of Naugatuck River, Naguatuck, CONNECTICUT. State Hy. Comn., State Office Bldg., Hartford, Conn.

BUILDINGS—LB & CA

C. Profenno Co., 127 Marginal Way, Portland, Me. LB $635,900, est. $500,000-$600,000. GYMNASIUM and CLASSROOM addn. to Mountain View School, SOUTH PORTLAND, ME. City, School Dpt., South Portland, Me. Bids Nov. 18. CD 11/2.

▲ **S. & A. Allen Constr. Co., Inc.**, 330 Rutherford Ave., Charlestown, Mass. CA $1,280,000, est. $1,200,000. constr. and leasing public PARKING FACILITIES, St. James Ave., Providence, Berkeley and Clarendon Sts., BOSTON, MASS. City, Real estate Comn., City Hall Annex, Boston, Mass. CD 11/28, under LB.

▲ **D. C. Loveys Co.**, 1430 Massachusetts Ave., Cambridge, Mass. LB $1,977,221. MFG. PLANT, BURLINGTON, MASS. High Voltage Engineering Corp., 7 University Rd., Cambridge, Mass. Bids Nov. 22. CD 11/9.

Aberthaw Constr. Co., 60 State St., Boston, Mass. CA Approx. $800,000. 80,000 sq. ft. MANUFACTURING BLDG., Industrial Park, NEEDHAM, MASS. A. Sandler Co., c/o Cabot, Cabot & Forbes, 60 State St., Boston, Mass., engrs.

Walsh Constr. Co., Inc., 119 Webb St., Salem, Mass. CA Approx. $580,000. PAROCHIAL SCHOOL, CONVENT, CHAPEL New Balch St., NORTH BEVERLY, MASS. St. John the Evangelist, Rev. Patrick H. Curtin, pastor, North Beverly, Mass. John M. Gray Co., 169 High St., Boston, Mass., archts.

Potter-Horn, Inc., Statler Bldg., Boston, Mass. CA Approx. $93,000. FACTORY, Rte. 20 Wilbraham St., PALMER, MASS. Colorado Fuel & Iron Corp., 575 Madison Ave., New York, N. Y.

▲ **Stone & Webster, Inc.**, 49 Federal St., Boston, Mass. CA Est. $20,000,000. GENERATING PLANT, Salem Harbor, SALEM, MASS. New England Electric System, 441 Stuart St., Boston 16, Mass.

Turner Constr. Co., 38 Newbury St., Boston, Mass. CA Approx. $100,000. ASSEMBLY BLDG. exten., loading platform, SOMERVILLE, MASS. Ford Motor Co., 183 Middlesex Ave., Somerville, Mass.

New England Home Development Corp., 858 Albany Ave., Hartford, Conn. Owner Builds, $600,000. APARTMENTS, Naragatuck St., HARTFORD, CONN.

Spencer Heights, Inc., c/o Bent & Bent, agts., 346 Farmington Ave., Hartford, Conn., Owner Builds. $850,000, 68 houses in RESIDENTIAL DEVELOPMENT, "Spencer Heights" off Kelly Rd. SOUTH WINDSOR, CONN.

▲ **Overbrook Heights, Inc.**, Robert Thurman, pres., Vernon, Conn. Owner Builds. $1,270,000. 106-unit RESIDENTIAL DEVELOPMENT "Overbrook Heights", Sunset Dr., VERNON, CONN.

Ames Constr. Co., 15 Standish St., Hartford, Conn., LB $703,000. Bukingham and Hamilton Lane, Elementary SCHOOLS, WATERTOWN, CONN. Town Bd. Educ., Gordon C. Swift, supt. Schools, Watertown, Conn. Bids Nov. 23. CD 11/15.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
ENR	**Engineering News-Record**
CD	**Construction Daily**

For additional reports see Construction Daily.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

Pa., Phila.—ELECTRIC POWER—BA 12/12—City, Dpt. Procurement, City Hall, Annex, Bid 6560 exten. of electric power and communication sys. to hotel area, Contr. A-287-SW, Phila. International Airport. CD 1/13/50.

Pa., Phila.—PLAYGROUND—BA 12/12—City, Dpt. Procurement, City Hall Annex, Wister Playground, Baynton and Shedacker Sts. Plans deposit $10. CD 2/8/45.

† **N. J., Fort Hancock**—SHORAN FACILITY—BA 12/13—Dist. P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York 7, N. Y., shoran facility, U. S. Navy Facility, NOY 90363, Spec. 49041. Plans deposit $10.

(Continued on page 112)

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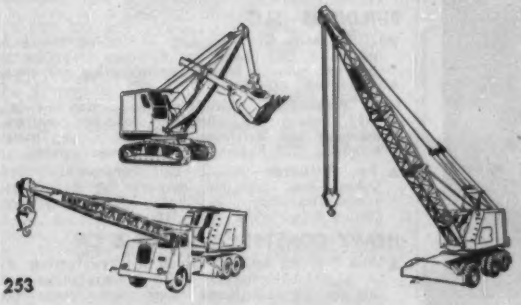

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(Continued from page 110)

▲ **NEW YORK**—BA 12/14—At office Raymond R. Maclean, clk., Suffolk County Bd. of Supervs., Suffolk County Court House, Riverhead,
Smith Point Bridge Contr. No. 1 the bascule span, flanking spans, approach spans, roadway lighting, toll facility and north approach plaza and roadway, $2,650,000. Plans deposit $100. CD 10/31.

New York—BA 12/15—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, soil explorations and foundation investigations at various sites of Bruckner Expressway Sect. II, from Bronx County Contr. No. Spec. SM-80; soil explorations and foundations investigations at various sites on Cross-Bronx Expressway from Clay to Arthur Aves., Bronx Co., Contr. No. Spec. SM-81. Plans deposit $5; adv. ENR 12/8.

† **D. C., Wash.—AREA IMPRVS.—BA 12/29**—Architect of Capitol, J. George Stewart, U. S. Capitol, Wash., D. C., reconstr., repair alterations, imprv. of areas located above and vicinity of legislative garage, U. S. Capitol Grounds. CD 1/4, under LB.

† **Maryland and D. C., Wash.**—BA On Or About 1/5—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., local flood protection and navigation proj., Anacostia River Basin, D. C. and Md., pumping stations Bladensburg, Colmar Manor and Edmonston, Prince Georges Co., Md., CIVENG-49-080-56-23. CD 9/13.

N. J., Atlantic City—MOTEL—Bids Asked—Boardwalk Motel, Att. Mr. Kress, Rhode Island Ave. and Boardwalk, motel, Rhode Island Ave. and Boardwalk, $944,000. D. W. B. Haining Jr., 5 S. Virginia Ave., archt.

BUILDINGS—BA

† **Md., Aberdeen and Pa., New Cumberland**—QUARTERS—BA 12/13—U. S. Eng., Box 1715, Baltimore 3, Md., nine Type D enlisted men family quarters at Aberdeen, Md., four Type F enlisted mens quarters, seven Type B senior officers quarters and one Type B-1 colonels quarters, New Cumberland General Depot, Pa., site imprvs., utilities, ENG-18-020-56-10. $500,000-$750,000. Plans deposit $40. Whiteside, Foster, Damon & Doane, Inc., 100 S. French St., Wilmington, Del., archts. CD 12/8/54.

▲ **Pa., Allison Park**—SCHOOL—BA 12/14—Hampton Twp. School Dist., 2-level, brick, steel Junior Senior High School addn., Hampton Twp. $1,000,000. Plans deposit $60. Celli Flynn, 335 Shaw Ave., McKeesport, archt. CD 4/21.

N. J., Mays Landing—SCHOOL—BA 12/15—Egg Harbor Twp. Bd. Educ., Mays Landing, elementary school. $344,000. Haining & Haining, 5 S. Virginia Ave., Atlantic City, archts. CD 6/24.

† **N. Y., Syracuse**—TRAINING CENTER—BA 12/20—U. S. Eng., 111 E. 16 St., New York, Zone 3, army reserve training center. $500,000-$1,000,000. Plans deposit $25. CD 9/20.

† **Md., Frederick**—TRAINING CENTER—BA 12/22—U. S. Eng., First and Douglas Sts. N. W., Wash 25, D. C., U. S. Army Reserve Training Center. ENG-49-080-56-23-(24). CD 10/28.

▲† **N. J., New Brunswick**—TRAINING CENTER—BA On Or About 12/28—U. S. Eng., 11 E. 16 St., New York 3, N. Y., U. S. Army Reserve Training Center, $300,000-$350,000. Plans deposit $25. CD 10/17.

▲ **N. Y., New York**—HOUSING—BA 1/10—New York City Housing Auth., 299 Broadway, Zone 7, (1) foundations and appurtenances (2) general constr. (3) foundations and general constr. (4) heating and ventilating (5) electrical work, and (6) plumbing for Mill Brook Houses, Proj. No. NYS-65, Sect. I, incl. Bldgs. Nos. 5 to 9 (inclusive), area bounded generally by E. 137 St., Cypress Ave., E. 135 St., and St. Ann's Ave., Bronx Boro. Plans deposit $75 plus furnishing and installation of elevators. Plans deposit $25. $10,000,000. CD 4/4.

▲† **D. C., Wash.**—WAREHOUSE—Bids Asked—General Services Admin., General Services Bldg., Wash. 25, D. C., construct and rent warehouse for Civil Defense Administration in six regions of the country. Plans available from regional offices in Boston, Mass., New York, N. Y., Wash., D. C., Chicago, Ill., Denver, Colo. and San Francisco, Calif.

Pa., Phila.—MANUFACTURING—Bids Asked—William Penn Mfg. Co., 5600 Greene St., Phila., 1 story 12,000 sq. ft., steel, masonry mfg. bldg. $100,000.

Pa., Phila.—PLANT—Bids Asked—Kellett Aircraft Corp., Central Airport, Pennsauken, N. J., aircraft mfg. plant, office, hangar, $500,000, Keller & Voekler 21 S. 15 St., Phila., engrs.-archts. CD 11/14.

BUILDINGS—SLC

Md., Baltimore—STORAGE AND OFFICE—Baltimore & Ohio R. R. Co., Charles and Baltimore Sts., Zone 1, soon lets contract, steel, concrete storage and office, Yard B, Mt. Clare Shops.

N. J., Pennsauken—SHOWROOM, etc.—Benton Tire Co., 1459 Haddon Ave., Camden, soon lets contract, showroom and warehouse, $100,000. Oren Thomas Architects, 112 Hadden Ave., Collingswood, archts.

▲ **Pa., Pittsburgh**—OFFICE—Bell Telephone Co., 416 Seventh Ave., soon lets contract, 12 story, steel headquarters office. $6,000,000. Press C. Dowler, Century Bldg., archt. CD 1/18.

HEAVY CONSTRUCTION—LB & CA

▲ **Alco Products, Inc.**, 30 Church St., New York, N. Y. CA $1,834,144. furnish, deliver towers, guides and sills for Barnhart Island Power Plant, Long Sault

Dam and Massena Intake, Spec. PA5-15066, St. Lawrence Contr. P-19, NEW YORK. The Power Auth. of State of New York, 270 Broadway, New York 7, N. Y. CD 11/16, under LB.

Anchor Post Products Co., 6500 Eastern Ave., Baltimore 8, Md LB **$184,359.** Rte. 11-G Rockaway Rte. wire mesh fence, Queens Boro, Contr. WQ, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Nov 18. CD 11/9.

▲ **T & T Contg. Corp.**, 4814 Glenwood Rd., Brooklyn 3, N. Y. CA **$2,296,441.** sanitary sewer, appurtenances 147 Ave., Brookville Blvd., 243 St., 146 Ave., Edgewood St., Huxley St., 249 St., 241 St., Newhall Ave., Mayda Rd., 145 Ave., 144 Ave., Caney Rd., Caney Lane, Weiler Ave., 143 Ave., 142 Ave., 141 Ave., 248 St., 247 St., 148 Ave., Weiler Lane, 147 Drive, 147 Rd., 257 St., 259 St., Francis Lewis Blvd., Memphis Ave., 246 St., 250 St., 139 Ave., Hook Creek Blvd., 253 St., 254 St., 255 St., North Conduit Ave., 138 Ave., 137 Rd., 137 Ave., 136 Rd., 136 Ave., 135 Ave., 133 Rd., 244 St., 245 St., NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens 25, N. Y. CD 10/13, under LB.

H. Sand & Co., Inc., 11 Park Place, New York, N. Y. LB **$248,300.** heating work for replacement of boilers and power plant equip., New York Psychiatric Institute, 722 W. 168 St., NEW YORK, N. Y. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Nov. 17.

Daniel G. Lanni Co., Inc., 251 Bonie Brae St., Rochester, N. Y. LB **$146,627.** (11 bidders) spur track and trestle, Power House Bldg. No. 146, Craig Colony, SONYEA, N. Y. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Nov. 17. CD 7/11., under Public Buildings.

▲ **W. J. Irwin & Sons, Inc.**, Tonawanda, N. Y. LB **$1,424,860.** West Side Drainage Proj., TONAWANDA, N. Y. City, City Hall, Tonawanda, N. Y. Bids Nov. 21. CD 4/6.

Whitmyer Bros., Hammonton, N. J., LB **$99,480** guard rail along New Jersey Turnpike, Salem, Gloucester, Camden and Burlington Counties, NEW JERSEY. New Jersey Turnpike Comn., Administration Bldg., New Brunswick, N. J.

NEW JERSEY—State Hy. Dpt., State Hy. Office Bldg. 1035 Parkway Ave., Trenton,

Peter W. Kero, Inc., 216 Washington Ave., Carlstadt, N. J., LB, **$410,295,** (11 bidders) underpass on Section 9-D, Route 17, at Ramapo Ave., Central Ave. and Spring St., Fed. Proj. U-102 (8), Ramsey Boro, Bergen Co. Bids Nov. 22. CD 11/7.

† **American Building Contr. & Supply Co. and Conrad Hanson Co., Inc.**, 50 Atlantic Ave., Long Branch, N. J., CA, **$792,450.** Special AAA Facilities, Schedule No. 1, Leonardo, ENG-30-065-56-129, NEW JERSEY. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Oct. 25, awarded Nov. 23. CD 10/31, under LB.

† **Tri County Constr. Co.**, 292 Mt. Carmel Ave., North Hills, Pa. LB **$91,821.** sewage treatment plant, sewers lines, at Special AAA Site No. 99, Bucks Co., ENG-36-10-61-56-15, PENNSYLVANIA. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids Oct. 10. CD 9/28.

† **U. S. Eng.**, Engineer Park, Buffalo 7, N. Y. rejected bids constr. 2 cellular groins and 8 sheet steel pile walls, Erie, Erie Co., PENNSYLVANIA. LB **$421,524.** CD 10/25, under LB.

John J. Kelly, 834 West Ave., Jenkintown, Pa. LB **$132,966.** sewers various locations, Contr. No. 40, ABINGTON, PA. Abington Twp. Comrs., Abington, Pa. Albright & Friel, 3 Penn Center Plaza, Phila., Pa., engrs.

Stone Constr. Co., 1717 Brandywine St., Phila., Pa. LB **$79,635.** playground, 66 and Regent Sts., PHILA., PA. City, Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Nov. 22. CD 11/3.

M. & J. B. McHugh, 892 N. Narkol St., Phila., Pa. LB **$158,203.** water mains various locations, Bid 2495, PHILA., PA. City, Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Nov. 21. CD 11/10.

Union Paving Co., 1227 N. Broad St., Phila., Pa. CA **$73,667.** Paving Bid 3647, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. CD 10/30/44.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

Williams Constr. Co., Box 145, Baltimore 20, Md. CA **$839,332.** cloverleaf interchange incl. dual WF steel beam bridge, grading 2.046 mi. Beltway, Contr. B 635-30-420, Baltimore Co. CD 10/18, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

F. P. Asher Jr. & Sons, 715 West St., Annapolis, Md. LB **$435,420.** surf. 1.94 mi. U. S. 40, near Frederick, Contr. F 490-24-720, Frederick Co. Bids Nov. 22. CD 11/10.

▲† **E. J. Albrecht Co.**, 2626 W. 26 St., Chicago, Ill. CA **$2,077,869.** local flood protection proj., channel imprv. Wills Creek Sect. 2 and 3, and viaduct pumping station, Cumberland, Md., and Ridgely, W. Va., MARYLAND AND WEST VIRGINIA. U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C. Bids Nov. 3, awarded Nov. 25. CD 11/7, under LB.

Ligon & Ligon, Inc., 3310 Ridgewood Ave., Baltimore 15, Md. LB **$132,910.** Contr. 23, conduit line and manholes, BALTIMORE, MD. City, Bureau Mechanical & Electric Services, 320 Municipal Bldg., Baltimore 2, Md. W. Rayner Straus, c/o owner, mech.-elec. engr. CD 5/10.

F. Angelozzi Constr. Co., 1660 Clough St., Baltimore 13, Md. LB **$79,406.** Contr. 345, storm water drains,

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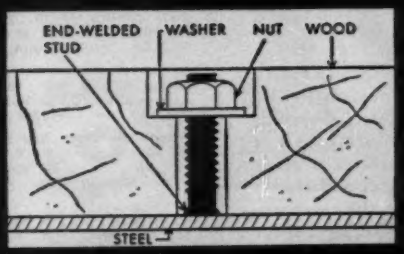
Looking for a faster, less costly way to fasten wood nailers to steel?

You'll find the answer in NELWELD®—the trigger-quick method of end welding fastener studs to steel. It makes the securing of wood nailers as simple as A-B-C . . . (A) Weld Nelson thread studs to steel member, (B) Lay nailer over studs and strike with hammer, giving stud locations, (C) Drill wood and assemble. An alternative method is to pre-drill wood and weld studs through holes in nailers.



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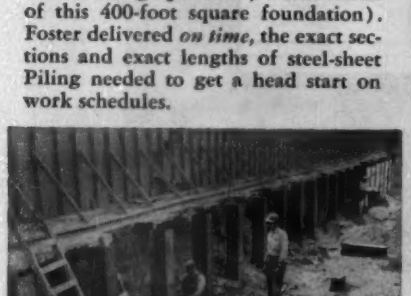
BIG HEAD START ON DEADLINE WITH FOSTER RENTAL STEEL—SHEET PILING

Checking Foundations with 120-Ton Load on H-Bearing Frames Anchored to Foster Piling

Hotel - Department Store - Parking Facility
THE DENVER COLORADO PROJECT

Contractors Webb & Knapp got a *Head Start* on this gigantic project by calling Foster for rental steel-sheet Piling, to complete four sumps (that were holding up the major excavation of this 400-foot square foundation). Foster delivered *on time*, the exact sections and exact lengths of steel-sheet Piling needed to get a head start on work schedules.



Foster 12"x 53 lb. H-Bearing Piles driven an average depth of 50 feet, around perimeter of the gigantic 400 foot excavation.

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BALTIMORE, MD. City, Bureau Sewers, 312 Municipal Bldg., Baltimore 2, Md. Bids Nov. 16. CD 11/10.

Alquist Bros., 4804 Hollywood Rd., College Park, Md. LB $49,411. Contr. 1595 W&S, water main, sewer in Dennis Ave., Julep Ave., and Court, Folk St., Inwood Ave., Woodman Ave., Hedge St. and Forest Grove Dr Forest Estates; Contr. 1609 W&S, water main, sewer in Gaynor Rd., Galena Rd., Merl Dr., Etter Dr., Randolph Rd., Franklin Park, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Nov. 21. CD 11/16.

Mario Anello & Sons, 4001 Second St., Baltimore 25, Md. LB $191,185. Contr. 458-S, sanitary sewers, Second Dist., TOWSON, MD. Comrs. Baltimore Co., Court House, Towson, Md. Bids Nov. 17. CD 11/4.

Alexander & Repass Co., 2005 Bladensburg Rd. N. E., Wash., D. C., LB, $535,909, widening Key Bridge, consisting removing existing tracks, asph. surf., sidewalk, railing and concrete roadway and cantilever sidewalk and lighting sys., WASH., D. C. D. C. Govt. Dpt. Hys., 499 Pa. Ave N W., Wash. D. C. Bids Nov. 22. CD 11/4

BUILDINGS—LB & CA

▲ **Greentree Estates**, c/o Alex Danin, archt., 780 Bronx River Rd., Fleetwood, N. Y. Owner Builds. $1,200,000. 45 HOUSES on 24 acre tract at Wilmot Rd., near White Plains Post Rd., EASTCHESTER, N. Y.

White Oaks at East Meadow Homes, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. $400,000. 25 HOUSES on tract at Newbridge Rd. south of Hempstead Turnpike, EAST MEADOW, N. Y.

▲ **Knickerbocker Knolls Homes**, c/o Long Island Homes, Inc., 168-12 Hillside Ave., Jamaica 32, N. Y. Owner Builds. $5,400,000. 300 HOUSES on 80 acre tract on Rte. 110 near Northern State Parkway, HICKSVILLE, N. Y.

Hilltop Woods Huntington Harbor Homes, c/o Albert B. Meklenburg Org. Inc., 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. $435,000. 15 HOUSES on tract on South Down Rd., HUNTINGTON, N. Y.

Lawrence Bay Park Homes, c/o Schuman & Lichtenstein, archt., 369 Lexington Ave., New York 17, N. Y. Owner Builds. $700,000. 20 HOUSES on tract on Rock Hall Rd., LAWRENCE, N. Y.

J. B. Constr. Co., Inc., c/o Kern Realty Co., 124-26 Queens Blvd., Kew Gardens, N. Y. Owner Builds. $420,000. 15 HOMES on tract at Bayville and Buckram Rds., LOCUST VALLEY, N. Y.

Pat-Gin Homes, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica 32, N. Y. Owner Builds. $390,000. 30 HOUSES on tract at Allenton Ave. east of Larkfield Ave., MASSAPEQUA, N. Y.

Guild Crest Homes, c/o Henry A. Klar Realty Co., 220-02 Horace Harding Blvd., Bayside Hills, N. Y. Owner Builds. $380,000. 20 HOUSES on tract at New Hyde Park Rd. and Tulip Ave., NEW HYDE PARK, N. Y.

▲ **Woodlands Homes**, c/o Seymour Orlofsky, 199 Main St., White Plains, N. Y. Owner Builds. $3,300,000. 110 HOUSES on 42 acre tract at Pinebrook Blvd. and Hutchinson River Parkway, NEW ROCHELLE, N. Y.

Mars Associates, Inc., & Normel Constr. Co., 132 Nassau St., New York 7, N. Y. CA $607,000. (9 bidders) general contract modernization and conversion to JUNIOR HIGH SCHOOL, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 10/20, under LB.

▲ **Oakdale Woods Homes**, c/o Henry A. Klar Realty Co., 220-02 Horace Harding Blvd., Bayside Hills, N. Y. Owner Builds. $1,350,000. 105 HOUSES on 31 acre tract at Montauk Hy. and Idle Hour Blvd., OAKDALE, N. Y.

▲ **Lakeville Estates**, c/o Samuel Paul, archt., 89-51 164 St., Jamaica 30, N. Y. Owner Builds. $6,300,000. 350 HOUSES on tract on Old Country Rd. east of South Oyster Bay Rd., PLAINVIEW. N. Y.

▲ **South Oak Homes**, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. $1,000,000 55 HOUSES on tract near Woodbury Rd. east of South Oyster Bay Rd., PLAINVIEW, N. Y.

▲ **Psaty & Fuhrman, Inc.**, 369 Lexington Ave., New York 17, N. Y. CA $2,930,000. JUNIOR HIGH SCHOOL, SCARSDALE, N. Y. Bd. Educ., Brewster Rd., Scarsdale, N. Y. CD 10/24, under LB.

Byrne Constr. Co., 290 Robineau Rd., Syracuse, N. Y. CA Est. $500,000. enlarge and modernize main OFFICE lobby, new mezzanine, lighting, SYRACUSE, N. Y. First Trust & Deposit Co., S. Warren St., Syracuse, N. Y. Hawley E. McAffee, 303 Elm Fayetteville, Fayetteville, N. Y., archt. Sargent Webster & Folley, 2112 Erie Blvd. E., Syracuse, N. Y., consultants. Robson & Woese, 2030 Erie Blvd. E., Syracuse, N. Y., elec. and air-cond. engrs. Thomas Farmer 205 Wellington Rd., Dewitt, N Y., struct. engr.

▲ **Massett Bldg. Co.**, 212 N. Georgia Ave., Atlantic City, N. J., CA, $1,000,000, MOTEL, swimming pool and restaurant, ATLANTIC CITY, N. J. 3400 Broadway Boardwalk Corp., 3542 Atlantic Ave., Atlantic City, N. J. Bids Oct. 28. CD 10/26.

Meadowbrook Estates, c/o Leonard G. Feinen, archt., 320 Lincoln Ave., Hasbrouck Heights, N J. Owner Builds. $770,000. 37 HOUSES on tract on Stevens Ave., CEDAR GROVE, N. J.

Norman Samano, Millville, N. J., CA, $93,000. 1 story, masonry MANUFACTURING BLDG. addn., MILLVILLE, N. J. George Sheppard Box Co., Millville, N. J. Edward G. Scheidt, Newfield, N. J., archt.

Bell Supply Co., 7220 Crescent Blvd., Pennsauken, N. J., Separate Contracts, $93,000, 1 story 66x138 ft. masonry WAREHOUSE ADDN., PENNSAUKEN, N. J. William Dean Faint, 1915 Browning Rd., Pennsauken, archt.

Ben Hajduk, 314 Park Ave., Woodlynne, N. J., Separate Contracts, $95,000. MACHINE SHOP and OFFICE, PENNSAUKEN, N. J. William Dean Faint, 1919 Browning Rd., Pennsauken, N. J., archt.

General Builders, Inc., 45 N. Stockton St., Trenton, N. J., LB $344,977, Elementary SCHOOL, PRINCETON, N. J. Princeton Twp. Bd. Educ., Moore St., Princeton, N. J. Bids Nov. 15. CD 11/2.

▲ **Matthew Constr. Co.**, 296 Alexander St., Princeton, N. J., CA $1,000,000, LIBRARY EXTENSION, PRINCETON, N. J. Radio Corp. of America, Penns Neck, Princeton, N. J. Shreve, Lamb & Harman, 11 E. 44 St., New York, N. Y., archts.

▲ **Riverson Estates**, Att. Max Odien, Norwood Ave. and Rt. 130, Pennsauken, N. J. Separate Contracts $2,000,000. 106 unit RESIDENTIAL DEVELOPMENT, Highland Ave., RIVERTON, N. J. Faint & D'Anastasio, 5521 Westfield Ave., Pennsauken, archts.

Pine Manor Homes, 2401 N. 33 St., Phila., Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Tree Rd., ABINGTON, PA.

Chesney Realty Corp., 838 E. Haines St., Phila., Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Preston Rd., ERDENHEIM, PA.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa. LB $1,319,500. general contract Charles Boehm Junior HIGH SCHOOL, FALLSINGTON, PA. Pennsbury Joint School Bldg. Auth., Fallsington, Pa. Bids Nov. 10. CD 10/26.

Keller Service, Inc., 1822 Chelten Ave., Phila., Pa. Separate Contracts. $390,000. RESIDENTIAL DEVELOPMENT, Saddleshop Rd., HARLEYSVILLE, PA. Erling H. Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

▲ **Crump, Inc.**, 4031 Bigelow Blvd., Pfttsburgh, Pa. LB Est. $2,500,000. 5 story, steel, masonry OFFICE, Homestead Plant, HOMESTEAD, PA. U. S. Steel Corp., 525 Wm. Penn Place, Pittsburgh, Pa. CD 6/30.

Fleming Co., 3 E. Wynnewood Rd., Wynnewood, Pa. CA $380,000. DINING ROOM, KITCHEN BLDG. at Einstein Medical Center, North Division, PHILA, PA. Albert Einstein Medical Center, Widener Bldg., Phila., Pa. Abraham Levy, 1411 Walnut St., Phila., Pa., archt. CD 12/1/54.

Perry J. Goldman Constr. Co., 225 S. 15 St., Phila., Pa. CA $100,000. rendering PLANT addn., PHILA., PA. M. L. Shoemaker & Co., Delaware Ave. and Venango St., Phila., Pa. Bids Sept. 20. CD 9/7.

Barclay White & Co., 22 N. 36 St., Phila., Pa. CA $850,000. 1 story, steel, 156,000 sq. ft. OFFICE and WAREHOUSE, PHILA., PA. William Montgomery Co., 999 N. Second St., Phila., Pa. Robert Montgomery Brown, 1728 Spruce St., Phila., Pa., archt.

Frank J. Collins, 2022 Moreland Rd., Abington, Pa. Separate Contracts. $700,000. RESIDENTIAL DEVELOPMENT, Easton Rd., WARMINSTER, PA.

Consolidated Eng. Co., 20 E. Franklin St., Baltimore 2, Md. CA $145,000. 260x143x27 ft., masonry MANUFACTURING BLDG. alteration, 601 S. Haven St., BALTIMORE, MD. Western Electric Co., 2500 Broening Hy., Baltimore, Md.

James H. Wood, Inc., 15 E. North St., Dover, Del., LB, $617,000. men's DORMITORY, DOVER, DEL. Delaware State College, Dover, Del. Bids Nov. 16. CD 10/26.

James H. Wood, 15 E. North St., Dover, Del., CA, $100,000. 1 story, masonry, steel, concrete WAREHOUSE, DOVER, DEL. Frank E. Lobacarro, Dover, Del. CD 9/9.

SOUTH

HEAVY CONSTRUCTION—BA

† **Va., Norfolk**—PAVEMENT—BA 12/13—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Zone 11, replacing concrete pavement, U. S. Naval Air Station, NOY 91416, Spec. 48325. Plans deposit $10.

† **Va., Portsmouth**—CONDENSATE RETURN—BA 12/13—Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, replace condensate return under Building No. 104, Naval Hospital, NOY 91423, Spec. 48326. Plans deposit $10.

† **Fla., Eglin Air Force Base**—RUNWAY—BA 12/14—U. S. Eng., P. O. Box 1169, Mobile 7, Ala., strengthening and marking existing North-South Runway and two blast pads, Auxiliary Field No. 2. CD 9/19.

† **S. C., Myrtle Beach**—DENTAL CLINIC—BA 12/20—U. S. Eng., 31 Customhouse, Charleston, dental clinic Myrtle Beach Air Force Base, No. 38-081-56-38. CD 11/15.

† **West Virginia**—BA 12/20—U. S. Eng., 237 Fourth Ave., Huntington, Zone 19, constr. State Road from U. S. Route 19 to Forks of Wolf Creek, Sutton Reservoir Proj., Elk River, Serial No. CIVENG-46-022-56-23. Extended date.

† **Florida**—BA On Or About 12/21—U. S. Eng., P. O. Box 4970 Jacksonville, Zone 1, dewatering and desilting the lock chamber repairing the valves and reconstr. fender system at Moss Bluff Lock, Oklawaha River, CIVENG-08-123-56-29. CD 11/24/43.

† **S. C., Parris Island**—GAP FILLER FACILITY—BA About 12/22—U. S. Eng., 31 Customhouse, Charleston, constr. unmanned gap filler facility, Marine Corps Recruit Depot, Serial No. ENG-38-081-56-42. CD 9/17/51.

(Continued on page 118)

JOY TWM-5 CHALLENGER DRILL

the BIG DRILL that has EVERYTHING

80° DRILLING RANGE

The Joy TWM-5 Challenger will drill at any angle between vertical and 10° above horizontal, making it applicable to almost any range of drilling required.

EXTREME MOBILITY

The TWM-5 is self-propelled on either rubber tires or crawler treads. It is driven on each side by a reversible piston type air motor, can turn in its own length, and can move into and out of most "tight" spots.

REMOTE CONTROL

All functions of operation, both drilling and moving, are controlled from the operator's station on the frame, directly over the left front wheel. Three hydraulic jacks provide stability while drilling.

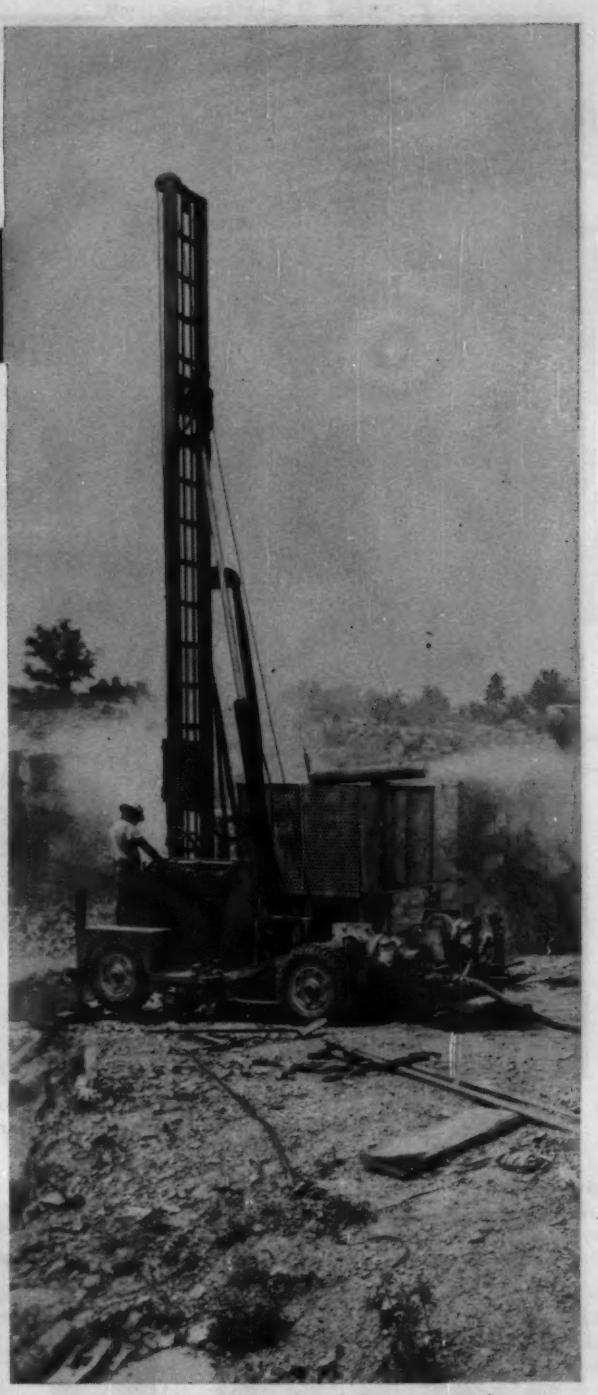
TM-500 DRILL

The drilling machine on the TWM-5 is the JOY TM-500, a 5¼" piston drill, which has proved itself in quarry, construction, and mining work as the first and still the leader in the big drill field. The TM-500 is mounted on an extra sturdy mast which is raised and lowered hydraulically.

ADDITIONAL FEATURES

Optional features available on the TWM-5 are a cab, designed for the best in operator comfort and protection, and a dust collection system.

Check today on the Joy TWM-5 for your drilling operation. Whether you drill vertical holes or toe holes, it will fit your program and give added rock tonnages from the day it first goes to work. Write for complete information today to ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*



Joy TWM-5 drilling deep holes (50' to 100') in granite in a southeastern quarry.

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ROCK BITS • PORTABLE HOISTS • FANS
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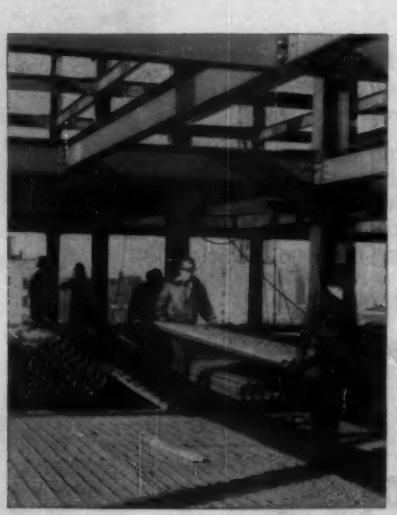
CONSTRUCTION EQUIPMENT MANUFACTURERS
FOR OVER HALF A CENTURY

Only 18 Days From Start to Finish! Averaging 3000 sq. ft. per day, workmen spraying 3 coats of acoustical plastic on Cofar completed each floor in only 3 days—the entire job in 18 days!

Handles easily, places fast—Cofar units arrived at the job site conveniently bundled and identified for immediate placing. In 8 days, 5 workmen had placed and welded Cofar into position — ready for concrete pours several days ahead of ordinary forms.

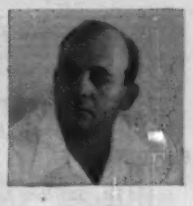


Wood forms eliminated—Because Cofar eliminates bulky, expensive wood forms, limited storage space on the job site was used to maximum advantage. Once installed, Cofar forms a solid, safe, sheltered working deck for all trades.

1 floor every 4 days—Fast Cofar construction helped to make up 60% of an 8-week delay. Concrete pours were made in 4 days per floor, more than 50% faster than with ordinary forms. Tight laps between Cofar units kept wet concrete from leaking.

Addition to Yorktowne Hotel, York, Pa.
Architect: *Roy Stiff, St. Louis, Mo.*
Hotel Consultant: *J. G. Jackson & Associates, St. Louis, Mo.*
Contractor: *R. S. Noonan, Inc., York, Pa.*

Hotel Consultant—J. G. Jackson says: "Cofar, sprayed with acoustical plastic, cut our ceiling-floor construction cost 42¢ per sq. ft.—an amazing saving! Also, this new kind of ceiling eliminates the possibility of future damage from plumbing leakage."



Job Superintendent—Norman Babner reports: "Our limited working area was not cluttered up because Cofar eliminates wood forms. Clean-up operations were cut because concrete does not leak through tight Cofar units."

Architect—Roy Stiff says: "Thanks to Cofar, we've made a definite saving in time, money and high labor costs. The Cofar and acoustical plastic ceilings offer distinctive beauty and secure the best fire insurance rating obtainable."

Cofar® sprayed with acoustical plastic cuts ceiling-floor construction costs 42¢ per square foot!

Five men install 8 floors of Cofar in 8 days in new York, Pa., hotel addition

Fireafe and beautiful—Acoustical plastic-on-Cofar ceilings eliminate between-floor wasted areas. Exposed to direct flame for over 4 hours without igniting, acoustical plastic sprayed on Cofar rates Underwriter's Laboratories Retardant Report 3413-7.

YORK, PA.—In the 8-story addition to the Yorktowne Hotel, a new kind of ceiling made of Cofar (combined form and reinforcement) sprayed with acoustical plastic has saved almost $9500 in building costs.

Roy Stiff, architect, reports: "Cofar's attractive corrugated pattern contributes a distinctive architectural effect. By eliminating expensive suspended or conventional plastered ceilings, Cofar, sprayed with acoustical plastic, saves 12″ to 18″ in wasted ceiling height . . . saves structural materials by reducing the over-all height of the building."

Says Norman Babner, job superintendent for R. S. Noonan, Inc., York, Pa., contractors: "Cofar cost only 7¢ per sq. ft. to install because the easy-to-handle units are quickly placed and welded. Once installed, Cofar forms an immediate, sheltered work platform for electricians and plumbers. Cofar placement and concrete pours averaged 4 working days per floor. With conventional forms, the same area would take 2 weeks. And, because Cofar requires minimum support, our shoring costs were only 1½¢ per sq. ft.!"

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(Continued from page 114)

La., Shreveport — COMMUNICATIONS RECEIVER BLDG.—BA About 12/27—U. S. Eng., P. O. Box 867, Little Rock, Ark., Job. No. Barksdale AFB-56-ACRP-AF communications receiver bldg., Item C 195-00, Barksdale Air Force Base, east of Bossier City, Bossier Parish. ENG-03-050-56-34.

BUILDINGS—BA

La., Gretna—SCHOOL—BA 12/14—Jefferson Parish School Bd., 519 Huey Long Ave., 31,000 sq. ft. steel Airline Park Elementary Scool. Plans deposit $50, Favrot, Reed, Mathes & Bergman, 402 Nola Bldg., New Orleans, archts.

† Ala., Fort McClellan—HOUSING—BA 12/15—U. S. Eng., 2301 Grant St., Mobile, Zone 7, twenty-two 76-family housing bldgs., ENG-01-076-56-39. CD 11/10.

▲† Ky., Fort Campbell—HOUSING—BA 12/20— U. S. Eng., 306 Federal Office Bldg., Nashville, Tenn., 201 brick veneer housing units, utilities, ENG-40-058-56-171. $2,500,000. Plans deposit $25. CD 11/28.

† N. C., Fort Bragg—HOUSING—BA 12/20—U. S. Eng., 308 Customhouse, Wilmington, 258 housing units, ENG-31-075-56-39. CD 11/10.

La., Lake Charles—STUDENT CENTER—BA 1/3—State Bldg. Auth., State Capitol, Baton Rouge, Proj. E9 MN-1 student center at McNeese State College. $350,-000. Plans deposit $30. Gabriel & Reames, 500½ Broad St., archts.

La., New Orleans—DWELLINGS—BA 1/5—New Orleans Housing Auth., 11111 Tulane Ave., Proj. La 1-14, Sect. 1, 81 dwelling bldgs., 508 units. Plans deposit $25. CD 9/15/49.

† Fla., Bay Pines—KITCHEN—BA 1/10—Office of Director Construction Service, Veterans Admin., Munitions Bldg., Wash. 25, D. C., main kitchen alterations, Building No. 1 and Serving Kitchens, Building No. 22 Veterans Administration Center, Proj. No. 5-4027, Spec. No. 5565.

† Tenn., Oak Ridge—BUILDING ADDN.—BA 1/10—U. S. Atomic Energy Comn., P. O. Box E, Attention: R. J. Dunbar Area Constr. Div., Oak Ridge, constr. Building 7503 Addn., Package II, in X-10 area. Inv. No. 401-56-6A. Plans deposit $10.

HEAVY CONSTRUCTION—LB & CA

▲† Albert A. Lutz Co., Inc., 241 W. 17 St., New York 11, N. Y., CA $1,612,621. hangar and water pumping station with water reservoir, Seymour Johnson Air Force Base, ENG-31-075-56-15, GOLDSBORO, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. Bids Nov. 8. CD 11/17, under LB.

† Thompson Constr. Co., Peoples Bldg., Charleston, S. C., LB $110,466, constr. aircraft washrack, Charleston Air Force Base, ENG-38-081-56-27, CHARLESTON, S. C. U. S. Eng., 31 Customhouse, Charleston, S. C. Bids Nov. 23. CD 11/1.

† Boyle Constr. Co., 30 E. Liberty St., P. O. Box 471, Sumter, S. C., CA $664,944, constr. 4 organizational maintenance shops, paving, storm drainage, sanitary sewers, power lines, Donaldson Air Force Base, ENG-38-081-56-10, GREENVILLE, S. C. U. S. Eng., Customhouse, Charleston, S. C. Bids Oct. 27. CD 11/16, under LB.

FLORIDA—State Road Dpt., Tallahassee,

Fla.—Brinson Constr. Co., Box 2209 Tampa Fla., LB $359,864 (4 bidders) new bridge approaches over Tampa Bay between St. Petersburg and Tampa, Jobs 1509-152 and 1013-150, SR 600, Pinellas and Hillsborough Counties;

Fla.—"Gunite" Associates, Inc., 7541 3 Pl., Miami, Fla., LB, $369,703 (4 bidders) sand blasting, painting steel in 335 plate girder spans, Seven-Mile Bridge on Overseas Hy. State Rd. No. 5, Job 9003-902, Monroe Co. Bids Nov. 22. CD 11/19.

▲ FLORIDA—State Road Dpt., Tallahassee,

Fla.—Troup Bros., Inc., Box 168, Miami 33, Fla., LB, $792,242 (4 bidders) rock base with b. conc., binder course, storm sewers, small drainage structures 3.63 mi. State Rd. 5, U-003-2 (5), Dade Co.;

Fla.—Handley Constr. Co., Pahokee, Fla., LB, $139,813 (7 bidders), rock base, surf., working wid'n., existing rock base, surf. small drainage structures 9.38 mi. State Rd. 70, S-169 (4), Job 9107-250, Okeechobee Co.;

Fla.,—Langston Constr. Co. & Hubbard Constr. Co., Orlando, Fla., LB, $468,796 (3 bidders) rock base, with b. conc., storm sewers, small drainage structures 1.532 mi. State Rd. 424, US-432 (1), Job 7526-275, Orange Co. Bids Nov. 22. CD 11/9.

▲ FLORIDA—State Road Dpt., Tallahassee,

Hardaway Contg. Co., Box 1360, Columbus, Ga., LB, $1,338,328. 70, 105,70 ft. continuous I-beam unit, bridge over Manatee River between Bradenton and Palmetto, U-011-2 (34r), Job 1313-275, Manatee Co.; LB $1,314,657, 3,122 ft. concrete deck girder span bridge, Structure "A"; 142 ft. concrete deck girder span bridge, Structure "B" concrete deck girder span bridge, Structure "C" 394 ft. long, bridge over Sarasota Pass, Perico Bayou and Palma Sola Bay, Job 1315-175, SR 64, Manatee Co. Bids Nov. 22. CD 11/1.

▲† Hooper Constr. Co., 136 Aragan Ave., Coral Gables, Fla., LB, $1,169,022, Levee 4 and Sect. 1 and Levee 28, Central Southern Florida Flood Control Proj., CIVENG-08-123-56-20, FLORIDA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Nov 22. CD 10/19.

† George D. Auchter Constr. Co., foot of E. 56 St., Jacksonville, Fla., LB, $243,890. second aircraft mooring, Naval Air Auxiliary Station, NOY 91092, MAYPORT, FLA. P. Wks. Officer, Dpt. Navy, Naval Base, S. C. Bids Nov. 23. CD 11/3.

† J. C. Harper Constr. Co., Winter Park, Fla., LB $682,446, base facilities, FY-56, ENG-08-123-56-26, Pinecastle Air Force Base, ORLANDO, FLA. U. S. Eng., P. O. Box 4970, Jacksonville 1, Fla. Bids Nov. 22. CD 10/12.

R. D. Cooper Co., Zachary, La., LB $114,760. Sect. 1, right of way clearing for Berwick transmission line, Sect. 2, 30,000 lin. ft. piling, 800 cu. yd. concrete, Sect. 3 erection of 12 steel transmission line towers, Berwick, LOUISIANA. Central Louisiana Electric Co., Alexandria, La. Bids Nov. 18. CD 11/10.

Sam Caline, Inc., Berwick, La. LB $320,000. Sect. 4 approx. 0.7 mi. single pole, 34.5 kv transmission line, etc. (Louisiana).

▲ Louisiana Paving Co., Drawer 8, Kenner, La. CA $2,930,436. Contr. 65-3 constr. Great New Orleans Expressway-approaches-South Shore-Harlem Ave., Airline Hy. interchange, New Orleans, LOUISIANA. Greater New Orleans Expressway Comn., Courthouse Bldg., Gretna, La. Bids Nov. 14. CD 11/10.

▲ LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

La.—John F. Beasley Constr. Co., 1614 Mercantile Bank Bldg., Dallas, Tex. LB $1,288,768. (5 bidders) superstructure I-beam, deck plate girder fixed high level bridge, c. conc. 1.175 mi., Red River Bridge and approaches at Grand Ecore, State Rte. 6, SP. 34-06-16, F.A. Proj. F 38 (4), Natchitoches Parish;

La.—Massman Constr. Co., 3917 Broadway, Kansas City, Mo. LB $856,411. (2 bidders) substructure consisting of 15 steel H-pile column bents with rein.-con. caps and 4 rein.-con. piers 0.355 mi., Red River Bridge at Grand Ecore, State Rte. 6, S.P. 34-06-14, F.A. Proj. F 38 (3), Natchitoches Parish;

La.—Spohrer-Pollard Contractor, Box 5127, Bossier City, La. LB $249,697. (3 bidders) 380 ft. concrete I-beam span bridge and concrete approaches 0.548 mi., Boeuf River Bridge and approaches, State Rte. LA. US 80, S.P. 2-02-17, F.A. Proj. F 182 (5), Richland Parish. Bids Nov. 16. CD 10/27 and 9/22.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

La.—Austin Contg. Co., Box 1590, Dallas, Tex. LB $332,890. (3 bidders) bit. surf. tr. 9.135 mi., Erath-Pilette Hy., La. Rte. 339, S.P. 828-11-03 and 828-12-05, Lafayette Parish;

La.—Bamber Contractors, Inc., Box 546, Denham Springs, La. LB $120,616. (2 bidders) bit. surf. tr. 4.028 mi. Louis Vincent Rd., Old River Rd. and Watson-Amite Church Hys., State Rte. 1034, 1028 and 1024, S.P. 832-14-02, 832-31-01 and 832-30-02, Livingston Parish;

(Continued on page 120)

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(Continued from page 118)

La.—**L. H. Bossier,** 212 Maryland Ave., Alexandria, La. LB $182,446. (6 bidders) bit. surf. tr. 7.296 mi. Odensburg-Simmsport and Odensburg-Yellow Bayou Hys., S.P. 144-04-14 and 805-25-04, Avoyelles Parish;

La.—**Constal Contractors, Inc.,** Box 911, Baton Rouge, La. LB $374,107. (3 bidders) bit. surf. tr. 4.793 mi. Paincourtville-Grand Bayou Hy., State Rte. LA. 70, S.P. 232-01-23, F.A. Secondary Proj. S 519 (1), Assumption Parish, LB $135,699. (1 bidder) wid'n. existing c. conc. 2.226 mi. Bastrop-Sterlington Hy., La. Rte. 2, S.P. 70-07-09, Ouachita Parish;

La.—**T. W. Kleinpeter,** Box 4686, Audubon Station, Baton Rouge, La. LB $104,788. (1 bidder) bit. hot tr. 6.837 mi. Johnsville-Glade Hy., La. Rte. 124, S.P. 143-06-07 and 143-05-04, Catahoula Parish;

La.—**Le Blanc Brothers,** 702 La. National Bank Bldg., Baton Rouge, La. LB $104,788. (1 bidderr) bit. hot mix surf. 8.23 mi. Des Allenmands-Boutte Hy., La. Rte. 631, S.P. 845-06-05, St. Charles Parish;

La.—**W. H. Patterson & Co.,** Box 2229, Baton Rouge, La. LB $338,129. (6 bidders) bit. surf. tr. 8.723 mi. McCall-White Castle Hy., State Rte. 20 S.P. 231-01-03, F.A. Secondary Proj. S 518 (1), Ascension Parish; LB $342,257. (4 bidders) bit. surf. tr. 8.804 mi. Veillon School-Mamou Hy., State Rte. La. 104, S.P. 200-02-02, F.A. Secondary Proj. S 512 (1), Evangeline Parish; LB $281,022. (5 bidders) bit. surf. tr. 7.791 mi., Breaux Bridge-Cecell Hy., La. Rte. 31, S.P. 56-30-03, St. Martin Parish;

La.—**O. J. Ward, Inc.,** 4768 Tulsa St., Shreveport, La. LB $97,174. c. conc. 0.435 mi., Delta Point relocation State Rte. La. U.S. 80, S.P. 2-05-11, Madison Parish;

La.—**L. M. Winford,** Box 564, Minden, La. LB $122,679. (5 bidders) bit. surf. tr. 7.648 mi. Gibsland-Athens Hy., La. Rte. 154, S.P. 88-05-06 and 88-06-07, Bienville and Claiborne Parishes; LB $121,664. wid'n. surf. with bit. hot mix 1.001 mi. U.S. 80 (Minden) State Rte. La. U.S. 80, S.P. 1-05-06, Webster Parish. Bids Nov. 16. 10/27 and 11/3.

Halpin Constr. Co., Thibodaux, La. LB $84,855. earthen levee and drainage ditches for imprv. Spanish Lake, Iberia and St. Martin Parishes, LOUISIANA. State Dpt. P. Wks., State Capitol, Baton Rouge, La.

† **Atlas Constr. Co., Inc.,** Box 2461, Vidalia, La. LB $264,137. dredging at Allen Lock and Canal, Indian Village to Morley La. Mile 8.6 to Mile 11.9 approx. 2,804,000 cu. yd., Port Allen, Inv. 56-96, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Nov. 17. CD 11/3.

Wilks, Dake & Steed, 414 Touline St., Natchitoches, La. CA $89,627 (4 bidders) alterations, addns. to water distr. sys., NATCHITOCHES, LA. City, Natchitoches, La. Bids Nov. 14. CD 11/3.

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,

Ky.—**Lyons Breeden,** Rogersville, Tenn. LB $85,468. (2 bidders) bit. macad. surf. 0.137 mi. Uniontown-Spring Grove Rd., S 345 (2), SP 113-287, Union Co.;

Ky.—**S. J. Boone,** Owensboro, Ky. LB $92,180. (3 bidders) traffic bound limestone 0.61 mi. Dixon-Slaughters Rd., S 626 (1), SP 117-169, SP 117-849, Webster Co.;

Ky.—**Sam Nally Co.,** Bardstown, Ky. LB $191,349. (2 bidders) traffic bound limestone 9.772 mi. Garfield-Lodiburg Rd., S 633 (1), RS 14-713, Breckinridge Co.;

Ky.—**Corbett Davidson & Son,** Mayfield, Ky. LB $102,801 (3 bidders) reconstr. traffic bound limestone 1.729 mi. Pottsville-Viola-Symsonia (Ky. 408) Rd. RS 42-488, Graves Co.;

Ky.—**State Contg. & Stone Co.,** Hartford, Ky. LB $81,310. (4 bidders) bit. surf. Class C-1 16.383 mi. various roads, Muhlenberg Co., Bids Nov. 18;

Ky.—Cancelled bids to have been opened Nov. 18, Utica-Greenbrier Rd., 0.132 mi., RS 30-817, Daviess Co. CD 11/3.

BUILDINGS—LB & CA

Bd. Educ., Wood Co., 725 Green St., Parkersburg W. Va., rejected bids Nov. 8, Hamilton Junior High SCHOOL, PARKERSBURG, W. VA., LB $498,560. Will re-advertise. CD 11/25, under LB.

† **Skinner & Ruddock, Inc.,** King St. exten., Charleston, S. C., CA $669,194, constr. damage control and fire-fighter SCHOOL BLDG., Charleston Naval Shipyard, NOY 91105, CHARLESTON, S. C. Dist. P. Wks. Office, Sixth Naval Dist., Bldg. No. 12, U. S. Naval Base, Charleston, S. C. Bids Nov. 9. CD 11/17, under LB.

Geo. A. Caldwell, Box 477, Baton Rouge, La. CA $595,831. HOSPITAL unit and some remodeling work, BATON ROUGE, LA. Baton Rouge General Hospital, 3600 Florida St., Baton Rouge, La. CD 10/10, under LB.

Dye & Mullins, Inc., Drawer 12, Columbia, Miss. LB $747,000. (5 bidders) Slidell Elementary SCHOOL, Slidell Junior High SCHOOL and alterations to existing St. Tammany High SCHOOL, SLIDELL, LA. St. Tammany Parish School Bd., Slidell, La. Bids Nov. 16. CD 11/10.

Rostetter Constr. Co., 3716 Lexington Rd., Louisville, Ky. LB $383,000. BANK and OFFICE, ELIZABETHTOWN, KY. First Federal Bldg. & Loan Assn., c/o Arrasmith & Tyler, archts., Madrid Bldg., Louisville, Ky., Southern Eng. Co., 322 W. Jefferson St., Louisville, Ky., engrs. Bids Nov. 16.

Switzer Willing Co., Trafton Ave., Lexington, Ky. LB $93,864. 2 story, 50x100 ft. concrete block, brick WAREHOUSE, at Kentucky Training Home, FRANKFORT, KY. State, Bldg. & Property Comn., Frankfort, Ky. CD 1/15/52.

▲ **Westinghouse Electric Corp.,** P. O. Box 868, Pittsburgh 30, Pa., CA $16,899,700, est. $16,279,000, three turbines for Memphis' $105,000,000 steam POWER PLANT (200,000 kilowatts for each generator), MEMPHIS, TENN. City, City Hall, Memphis, Tenn. City also took option on three 250,000 kw. generators to cost $20,540,580 in event it is decided that size generators will be more feasible. Bids Oct. 20, awarded Nov. 21. CD 10/26, under LB.

▲ **R. P. Farnsworth Co.,** 1515 S. Salcedo St., New Orleans, La. CA $1,739,000. 2 story, bsmnt., 130x234 ft., steel SUPREME COURT, NEW ORLEANS, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Bids Nov. 15, awarded Nov. 22. CD 11/21, under LB.

Dye & Mullins, Inc., Drawer 12, Columbia, Miss. CA $747,060. Slidell Elementary SCHOOL, Slidell Junior High SCHOOL and alterations, addns., to existing St. Tammany High SCHOOL, SLIDELL, LA. St. Tammany Parish School Bd., Slidell, La. Bids Nov. 16, awarded Nov. 21. CD 11/28, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Mich., Birmingham—SWIMMING POOL—BA 12/13—City, Amos F. Gregory, secy., City School Dist., Chester and Marting Sts., swimming pool addn. to Derby Junior High School. Plans deposit $20, refundable, Eberle M. Smith Assoc., Inc., 153 E. Elizabeth St., Detroit, archt. CD 5/27.

Wis., Fountain City—BA 12/13—City, City Hall, sanitary sewers and sewage treatment plant. $100,000. Davy Eng. Co., 524 Main St., La Crosse, Ind., engrs. CD 11/10/54.

Mich., Caro—BA 12/15—State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, sewage treatment plant, addns., Caro State Hospital, Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Zone 26, archts. CD 2/9/53.

▲† **Ohio**—NIKE LAUNCHING SITE—BA 12/15—U. S. Eng., New Post Office Bldg., Pittsburgh, Pa., constr. nike launching site at Crile Veterans Admin. Hospital, Parma Heights, $1,000,000-$1,250,000; constr. nike site Garfield Heights, $1,000,000-$1,250,000. CD 10/13, under LB.

Wis., Milwaukee—BA 12/21—City, City Hall, Water Storage Tank No. 2, Lincoln Ave. $175,000. Plans deposit $10. Lloyd D. Knapp, city engr. CD 8/3.

† **O., Shelby**—HEATING PLANT—BA On Or About 12/28—U. S. Eng., 237 Fourth Ave., Huntington 19, W. Va., central heating plant, Wilkins Air Force Station, ENG-46-022-56-10. CD 8/18.

(Continued on page 122)

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(Continued from page 120)

BUILDINGS—BA

Mich., Mount Pleasant—CUSTODIAL—BA 12/15—State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, 4 custodial bldgs., Mount Pleasant State Home & Training School, Extended date, Roger Allen & Assoc., 1126 McKay Tower, Grand Rapids, archts. CD 11/17.

† **Ill., Granite City**—HOUSING—BA 12/20—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54, family housing and utilities, Granite City Engineer Depot, Serial No. ENG-11-032-56-28. CD 11/16.

Mich., Royal Oak—SCHOOL—BA 12/21—Royal Oak Twp. Leonard Maker, secy., Lamphere School Dist., John R. and 13 Mile Rd., Elementary School No. 2, $500,000, Earl G. Meyer, 806 Farwell Bldg., Detroit, Zone 26, archt. CD 9/28.

▲ **Mich., Ionia**—PRISON—BA 1/12—State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, first phase medium security prison, incl. housing unit, admission center, administration bldg., food service and sub-station, Total est. $7,000,000, J. & G. Daverman Co., 924 Grandville Ave. S. W., Grand Rapids, archts. CD 4/21.

▲ **O., University Heights**—STORE—BA 2/1—The May Co., Euclid Ave. at Ontario St., Cleveland, Zone 14, (selected list bidders), store, $5,000,000. CD 9/8.

O., Cleveland—SERVICE CENTER—Bids Asked—East Ohio Gas Co., 1405 E. Sixth St., Zone 14, 28,000 sq. ft. west side service center, incl. garage, warehouse, repair facilities and office quarters, Chatfield Ave. southwest between W. 150 and W. 157 Sts., $600,000. Wilbur Watson & Assoc., 2930 Prospect Ave., Zone 15, engrs.

BUILDINGS—SLC

Mich., Warren—RESEARCH—General Motors Corp., General Motors Bldg., Detroit, Zone 2, soon lets contract gas turbine research bldg. addn., General Motors Technical Center, Argonaut Realty Div. General Motors Corp., General Motors Bldg., Detroit, Zone 2, engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus,

Wander & Mason, Inc., Worthington, O. LB $3,330,652, est. $3,226,700. eight-tenths mile of limited access hy., two railroad grade separation projs. and six hy. grade separation projs. to complete Spring-Sandusky interchange, first unit in Columbus Expressway System. Bids Nov. 22. CD 9/28.

Shaw-Comer Corp., 7016 Euclid Ave., Cleveland 3, O. LB $113,756, est. $95,000 (6 bidders) ash handling facilities at southerly sewage treatment works, CLEVELAND, O. City, Dpt. Sewage Disposal, G. E. Flower, comr., City Hall, Cleveland 14, O. Bids Nov. 18. CD 11/11.

American Constr. Co., 4100 Brookpark Rd., Cleveland, O. LB $381,558. swimming pool, EUCLID, O. Young Men's Christian Assn., 2200 Prospect Ave., Cleveland 15, O. Hays & Ruth, Playhouse Square Bldg., Cleveland, O., archts.

▲ **ILLINOIS**—State Div. Hys., P. Wks. & Bldgs., Centennial Bldg., Springfield,

Regenhardt Constr. Co., P.O. Box 440, Cape Girardeau, Mo., CA, $1,029,000. c. consc. 5 mi. Ill. Rt. 140 and paved ramps to U. S. Rt. 66 ¼ mi. east of Hamel for grade separation, Madison Co. Bids Nov 18. CD 11/22, under LB.

ILLINOIS—State Div. Hys., P. Wks. & Bldgs., contennial Bldg., Springfield,

rejected bids Nov. 18, landscaping FA Route 131 (Congress St. Expressway) from Sacramento Blvd. to Morgan St., Chicago, Cook Co., LB $87,673. CD 11/22, under LB.

▲ **MICHIGAN**—State Hy. Dept., Stevens T. Mason Bldg., Lansing,

Mich.—Louis Garavaglia, 24240 Mound Rd., Center Line, Mich. CA $3,482,816. grade separation Edsel Ford Expressway, UI X11 of 82-10 C1-U0 (UI 391 66), Wayne Co.

Mich.—Darin & Armstrong, Inc., 2041 Fenkell St., Detroit, Mich. CA $949,000, est. $960,000, grade separation John C. Lodge Expressway, UI X3 and UI B50 of 82-22-12 C1 (UI 404 97 and 98), Wayne Co. CD 11/23, under LB.

MICHIGAN—State Hy Dpt., Stevens T. Mason Bldg., Lansing,

Bacco Constr. Co., Iron Mountain, Mich. CA $519,056 bit binder c. conc. 1.842 mi. US-2, U 27-3 C5-U (U 163 23), Gogebic Co. CD 11/23, under IB.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Darin & Armstrong, Inc., 2041 Fenkell St., Detroit Mich. CA $879,081, est. $900,000. Studebaker-Packard facilities, Edsel Ford Expressway, TI of 82-22 C3, Wayne Co. CD 11/23, under LB.

Wobig Constr. Co., 527 N. Woodbridge St., Saginaw, Mich. CA Est. $80,000. swimming pool, bathhouse, CARO, MICH. Village, Glen H. Montague, clk., Caro, Mich. Bids Sept. 19. CD 9/9.

W. D. Potter Co., 240 Jefferson St., Lansing, Mich. LB $132,352. 8,000 lin. ft. 12- to 60-in. pipe lines, storm sewers, HOWELL, MICH. City, Fred C. Catrell, city clk., Howell, Mich. Bids Nov. 8. CD 10/28.

BUILDINGS—LB & CA

John Jacobson Co., 1046 N. Main St., Akron, O. CA Est. $400,000. 3 story, bsmnt. addn., 69x77 ft. office addn., AKRON, O. Evans Savings Assn., Exchange and Main Sts., Akron, O.

Abbeyshire Constr. Co., Leonard Merrick, pres., 21055 Lorain Ave., Cleveland 26, O. Own Forces. $900,000. 50 HOMES, west of Lindberg Blvd., BEREA, O. Andrew Burin, c/o owner, archt. Awarded Nov. 15.

▲ **Seltzer Building Co.,** Geo. N. Seltzer, pres., 4169 Pearl Rd., Cleveland 9, O. Own Forces. Est. $1,375,000. 11 APARTMENTS, 11 units each on 7½ acre site east of Fulton Rd., CLEVELAND, O. Heine, Crider & Williamson, Berea, O., archts. Awarded Nov. 22.

Leo W. Schmidt Co., 9920 Granger Rd., Cleveland 20, O. LB $589,350. (9 bidders). general contract elementary SCHOOL, Bangor Ave. and E. 128 St., GARFIELD HEIGHTS, O. Bd. Educ., 4900 Turney Rd., Garfield Heights, O. Bids Nov. 22. CD 11/1.

▲ **Maple Housing Corp. & Dunham Housing Corp.,** 5675 Turney Rd., Cleveland 25, O. Own Forces. $1,386,000. 84 HOMES, Wilbern and Steinway Blvds., MAPLE HEIGHTS, O. Damon, Worley, Samuels, & Assoc., 926 Engineers Bldg., Cleveland 14, O., archts. Awarded Nov. 21.

▲ **D-& R Constr. & Realty Co.,** 4575 Parl Rd., Cleveland 9, O. Own Forces. Est. $2,700,000. 150 HOMES at W. 116 and Pleasant Valley Rds., PARMA, O. Nathan Bernstein, 4618 Euclid Ave., Cleveland 3, O., archt. CD 9/15.

Leonard H. Krill Co., 2169 E. 33 St., Cleveland 15, O. LB est. $200,000. 1 story, 35,000 sq. ft. brick, stone PLANT on 7 acre site on Aurora Rd., SOLON, O. S-P Mfg., 12415 Euclid Ave., Cleveland, O. Dalton & Dalton, Old Arcade, Cleveland 14, O., archts.

Grant-Holladay Constr. Co., Callahan Bldg., Dayton, O. Owner Builds. $600,000. 51 HOMES, Lincoln Knolls area, YOUNGSTOWN, O.

General Constr. Co., 301 Garfield St., Michigan City, Ind., LB, $344,305. 22,600 sq. ft. HIGH SCHOOL, CROWN POINT, IND. Ross School Twp., Crown Point, Ind. Turner & Turner, 5246 Hohnan St., Hammond, Ill., archts.

Lewis C. Bowers & Sons, 341 Nassau St., Princeton, N. J., CA, est. over $500,000. 251x400 ft. WAREHOUSE and 40x114 ft. OFFICE, West State St., FORT WAYNE, IND. W. T. Grant Co., 1441 Broadway, New York, N. Y. O. Kline Fulmer, 341 Nassau St., Princeton, N. J., archt. CD 10/26.

Black-Anderson Constr. Co., 428 N. Michigan St., South Bend, Ind., CA, $551,000. HIGH SCHOOL near SOUTH BEND, IND. Portage Twp. Advisory Bd., 130 N. Lafayette St., South Bend, Ind. Awarded Nov. 14. CD 10/17.

T. L. Hickey Constr. Co., 712 N. Niles St., South Bend, Ind., CA, Total est. $600,000. general contract 5 story, bsmnt., 92x112 ft. T-shaped NURSES RESIDENCE addn., SOUTH BEND, IND. St. Joseph's Hospital, 401 S. Notre Dame St., South Bend, Ind. Bids Nov. 9. CD 11/18, under LB.

Zook Realty Corp., 217 W. Franklin St., Elkhart, Ind., Own Forces, $850,000. 80 HOMES, SOUTH BEND, IND.

E. W. Hauser Constr. Co., Lemcke Bldg., Indianapolis, Ind., CA, Est. $350,000. 1 story, brick SCHOOL, Whitaker and McGauhey Rds., WANAMAKER, IND. Franklin Twp. School Bd., Harold Schuman, trustee, Wanamaker, Ind. Hill & Wupper, Indiana Trust Bldg., Indianapolis, archts.-engrs. CD 10/11/54.

▲ **LeRoy Schielka,** 5665 Ainslie St., Chicago, Ill., CA $1,400,000, 120 HOMES, BELLWOOD, ILL. Rola Homes, Inc., 19 S. La Salle St., Chicago 3, Ill. Dewey & Pavlovich, 4804 N. Kedzie St., Chicago, Ill., archts. Awarded Nov. 14.

Panozzo Constr. Co., 11912 Union Ave., Chicago, Ill. Own Forces. $960,000. 60 HOMES, CALUMET CITY, ILL. Floyd Evans, 8317 S. Prairie St., Chicago, Ill., archt.

Severin Swayback Constr. Co., 423 South St., Elgin, Ill., Own Forces, $525,000, 30 HOMES, ELGIN, ILL.

Enger Brothers, 4910 St. Paul Ave., Chicago, Ill., CA $300,000, FACTORY, Wolf Rd. and Belmont Ave., FRANKLIN PARK, ILL. National Concrete Pipe Co., 9400 Belmont St., Franklin Park, Ill. N. Ronneberg, 3906 N. Harlem St., Chicago, Ill., archt. Awarded Nov. 17.

▲ **Sheridan Builders, Inc.,** 4714 Oakton St., Skokie, Ill. Own Forces. $3,350,000, 140 HOMES, GLENVIEW, ILL. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, Ill., archt.

▲ **Joe Frondrist,** 1316 John St., Joliet, Ill., CA, $1,100,000, 65 HOMES, LEMONT, ILL. Glenn McAdam, Lemont, Ill. Semiteloc & Larson, 81 N. Chicago St., Joliet, Ill., archts. Awarded Nov. 15.

▲ **Thomas Breen Home Builders,** 5000 Mulligan Ave., Chicago, Ill. Own Forces. $1,500,000. 75 HOMES, NILES, ILL.

Pacesetter Homes, Inc., 16175 S. Park Ave., South Holland, Ill. Own Forces. $875,000. 50 HOMES, SOUTH HOLLAND, ILL.

Chesterfield Builders, 3034 W Devon St., Chicago, Ill., Own Forces $400,000 25 HOMES west of WILMETTE, ILL. Eugene Meyer c/o owner, archt.

Commonwealth Electric Co., 417 Broadway, St. Paul, Minn., CA, $298,760, electrical work, in addn. to STEAM POWER PLANT addn., ALMA, WIS. Dairyland Power Co-operative, 123 N. 4 St., La Crosse, Wis. CD 8/10/54.

T. S. Willis Co., 20 E. Milwaukee Ave., Janesville, Wis., CA, Est. $400,000 1 story, 50,000 sq. ft., concrete, steel, brick, block FACTORY addn., DELAVAN, WIS. Geo. W. Borg Corp., 903 Wisconsin St., Delavan, Wis. CD 9/14.

Theo. Utschig, 400 W. Parkway Blvd., Appleton, Wis., CA, Est. $750,000. 1 and 2 story, 185x250 ft., brick, block, stone steel BAKING PLANT, GRAND CHUTE, WIS. Elm Tree Baking Co., 308 E. College Ave., Appleton, Wis.

A. Hynek & Sons Co., 2052 Douglas Ave., Racine, Wis., Est. $150,000, 1 story 16,000 sq. ft. concrete, steel, brick block FACTORY and OFFICE, RACINE, WIS. Harris Metals Treating Co., 1635 Murray Ave., Racine, Wis. F. J. Hoffman, 201 6 St., Racine, Wis., archt.

Marmet Corp., Bellis St., Wausau, Wis., Day Labor $200,000, 140x160 ft. concrete, steel, brick, glass FACTORY Addn., WAUSAU, WIS. D. M. Schoepke, 614½ 3 St., Wausau, Wis., archt.

Wergin Co., 200 Wausau Ave., Wausau, Wis., CA, $100,000. cold storage WAREHOUSE, WAUSAU, WIS. Wisconsin Distributing Co., Wausau, Wis. H. W. Gjelsteen, 113 6 Ave., Menominee, Mich., archt.

Hunziner Constr. Co., 4577 N. 124 St., Butler, Wis., CA, $605,000. CHURCH, WAUWATOSA, WIS. St. Jude's Catholic Congregation, 734 Glenview Ave., Wauwatosa, Wis. Grellinger & Rose, 737 N. Broadway, Milwaukee, archts.

Jezo Constr. Co., 1909 S. 74 St., West Allis, Wis. CA, $755,726, general contract CIVIC CENTER, WAUWATOSA, WIS. City, 7616 Harwood Ave., Wauwatosa, Wis. Bids Oct. 20, awarded Nov. 15. CD 10/26, under LB.

▲ **The Lundblad Co.,** 211 N. Telegraph St., Dearborn, Mich. Owner Builds. $1,500,000. Brookside Sub-division HOMES, Brookside Dr., Dearborn Twp., DEARBORN, MICH. CD 1/29/52.

Perron Constr. Co., 6525 Lincoln St., Detroit 2, Mich. CA $311,000. Constr. STACK and addn. to COAL BUNKER, POWER PLANT, 5425 Jefferson St., DETROIT, MICH. City, Public Lighting Comn., 174 E. Water St., Detroit, Mich. Burns & Roe, 233 Broadway, New York, N. Y., engrs. CD 12/15/52.

▲ **Certified Realty Corp. (agent),** 18135 West Seven Mile Rd., Detroit, Mich. Owner Builds. $3,750,000. Lake Oakland Heights, 300 ranch HOMES, Walton Blvd., Sashabaw Rd., DRAYTON PLAINS, MICH.

Alstrom Constr. Co., 1021 E. Airport Rd., Muskegon, Mich. LB $926,490. (2 bidders) Marquette Elementary SCHOOL, MUSKEGON, MICH. City, Bd. Educ., Frank K. Deyoe, secy., Muskegon, Mich. Bids Nov. 15. CD 10/18.

Alstrom Constr. Co., 1021 E. Airport Rd., Muskegon, Mich. CA $550,247. Elementary SCHOOL and GYMNASIUM addn., MUSKEGON, MICH. City, Wayne Hamilton, secy, Maple Grove Schol Dist., Muskegon, Mich. CD 11/25, under LB.

Strom Constr. Co., 625 First St. N.W., Grand Rapids, Mich. CA $148,000. 86x145 ft. STORAGE BLDG., Jarman St., MUSKEGON HEIGHTS, MICH. General Telephone Co., 860 Terrace St., Muskegon, Mich. Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, Mich., archts.

Eastland Homes, Inc., 28973 Ursuline St., St. Clair Shores, Mich. Owner Builds. $700,000. 90 brick ranch HOMES, south of 12 Mile Rd., ST. CLAIR SHORES, MICH.

▲ **G. A. Karam Co.,** 20939 John R. Rd., Hazel Park, Mich. Owner Builds. $1,800,000. 150 brick HOMES, Ryan, Nine Mile and Toepfer Rds., Warren Twp., WARREN, MICH.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Ark., Jacksonville**—TRAINING BLDGS.—BA 12/13—U. S. Eng., 300 Broadway, Little Rock, target intelligence training bldgs., Little Rock Air Force Base, ENG-03-050-56-33. CD 11/16.

† **Tex., Amarillo**—ELECTRICAL SYS.—BA 12/14—U. S. Eng., Box 61, Tulsa 2, Okla., AC & DC electrical sys. in hangar area, Amarillo Air Force Base, ENG-34-066-56-21. $125,000. CD 2/18/53.

Iowa, Muscatine—BA 12/15—City, City Hall, sewers $200,000. Stanley Eng. Co., Hershey Bldg., engr.

† **Arkansas**—BA 12/20—U. S. Eng., P. O. Box 60, Vicksburg, Miss., Arkansas River Bank Stabilization Works, standard revetment and pile dike constr. Item DR-94.3-R, Below Fergus Crossing on right, descending bank approx. 94 mi. above the mouth of Arkansas River at Below Fergus Crossing, Jefferson Co.

† **S. D., Rapid City**—DORMITORIES, FIELDHOUSE—BA 12/20—U. S. Eng., 1709 Jackson St., Omaha, Neb., airmens' dormitories and recreation fieldhouse, Ellsworth Air Force Base, Inv. 25-066-56-25. CD 11/12/51.

† **Wyo., Cheyenne**—DORMITORIES, etc.—BA 12/20—U. S. Eng., 1709 Jackson St., Omaha, Neb., airmen's dormitories, dining hall, F. E. Warren Air Force Base, Inv. 25-066-56-36. CD 8/19.

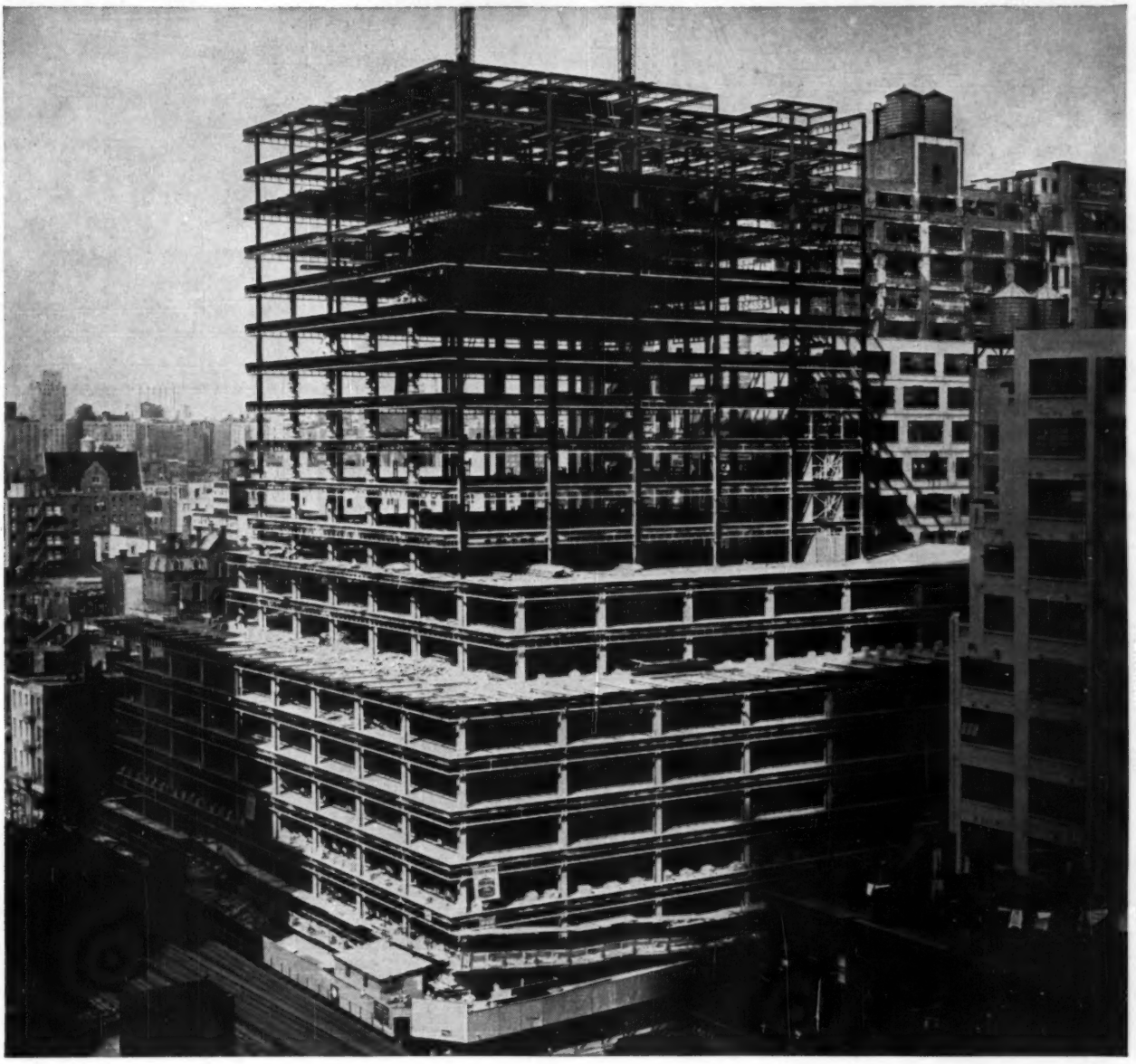
† **Tex., Port Isabel**—FUEL STORAGE—BA 12/21—Officer in Charge of Constr., Naval Air Advanced Training Command, Naval Air Station, Corpus Christi, constr. fuel storage facilities, Naval Auxiliary Landing Field, NOY 89009, Spec. 47899. Plans deposit $15.

† **Tex., Victoria**—DORMITORIES—BA 12/22—U. S. Eng., Box 1229, Galveston, airmen's dormitories, Foster Air Force Base, ENG-41-243-56-27. $500,000-$1,000,000. CD 11/25.

† **Mont., Great Falls**—STORAGE BLDG.—BA 12/27—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., GAR-1 bulk ammo storage bldg. and related facilities at Malmstrom Air Force Base, ENG-45-164-56-19. Plans deposit $100.

† **Minn., Minneapolis**—PAVING FACILITIES—BA About 12/28—U. S. Eng., 1217 Post Office & Custom House, Minneapolis, constr. paving facilities at Minneapolis-St. Paul International Airport, ENG-21-018-56-5.

(Continued on page 125)



Topped Out in 46 Working Days

Speed was the keynote in erection of the impressive structural steel framework for 711 Third Avenue in New York City. Using four big guy derricks, Bethlehem crews quickly completed the 200 x 230-ft lower floors. Only two derricks were needed for the more slender tower portion of the 19-story office building.

Close on the heels of the erection crews came the riveting and bolting gangs. They drove 44,000 rivets and placed about 23,000 machine bolts. Smooth coordination by all concerned resulted in the topping out of the 4000-ton framework just 46 working days after work began—that's approximately 87 tons of steel erected per day!

711 Third Avenue marks the first modern office building to be constructed on the easterly side of Third Avenue. Development of this area has been encouraged by the condemnation of the "El," a short section of which can be seen in the lower left-hand corner of the photograph.

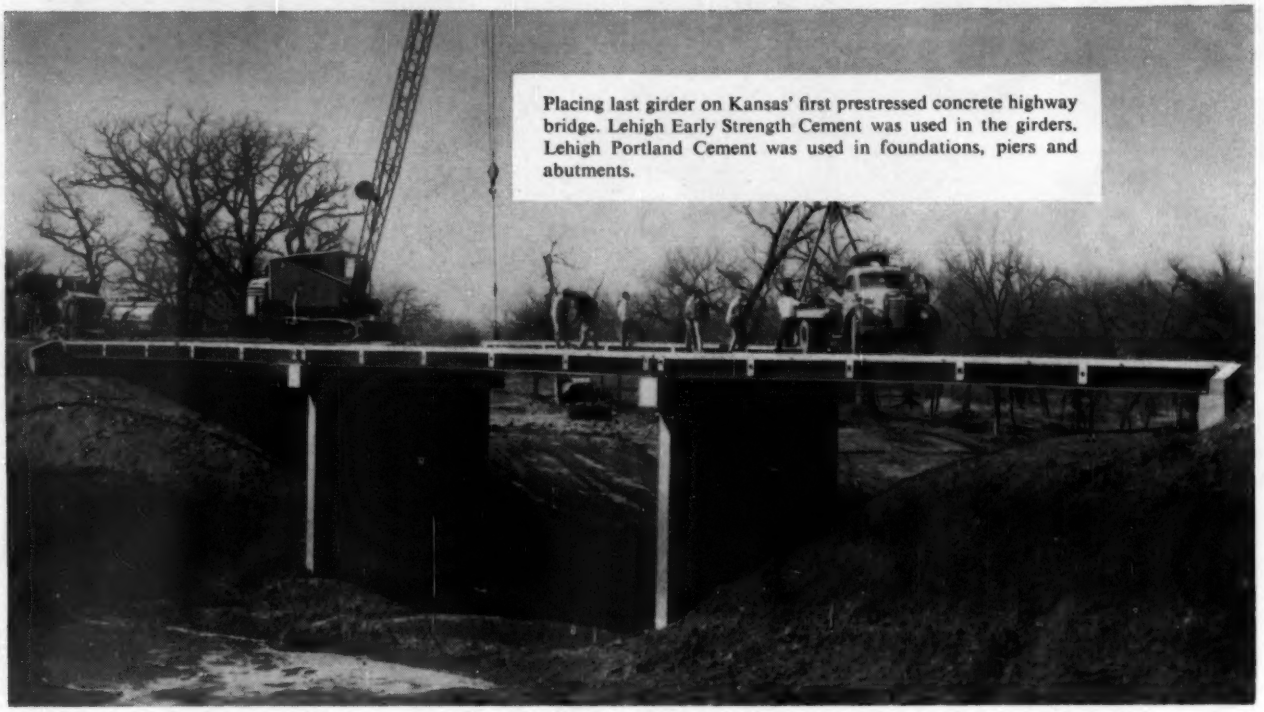
Builder of 711 Third Avenue is William Kaufman; architect is William Lescaze; consulting engineers are Weinberger & Weishoff; while the general contractor is Diesel Construction Company, Inc.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

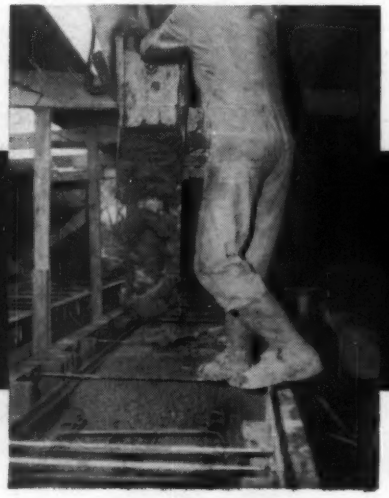
BETHLEHEM STEEL



Placing last girder on Kansas' first prestressed concrete highway bridge. Lehigh Early Strength Cement was used in the girders. Lehigh Portland Cement was used in foundations, piers and abutments.

• One of the 30 prestressed beams being swung into position. Note casting bed in the background. Each beam is 45′ long and 1′ 10″ deep. Width at top is 31¼″, at bottom 10″. Web is 5″ thick.

• Pouring girders at job site casting bed. Tarps cover bed to contain heat from salamanders and protect concrete from *temperatures that averaged* 10° *above zero.*



Owner—LINCOLN COUNTY, Kansas
General Contractor—ANDERSON CONSTRUCTION CO., Holton, Kansas
Prestressed girders designed by—KANSAS CITY PRESTRESSING, INC., Kansas City, Missouri

75 days saved . . .

with LEHIGH EARLY STRENGTH CEMENT

The first prestressed concrete highway bridge in Kansas was built last winter, replacing a worn-out structure near Lincoln. To reopen the road as quickly as possible and to keep the high cost of cold weather construction at a minimum, Lehigh Early Strength Cement was used in the prestressed deck girders.

The results! Girders reached post-tensioning strength in ¼ the usual time. Form costs were cut 50%, winter curing costs 30%. The *75 calendar days saved* in casting the girders greatly reduced labor and overhead costs—and permitted earlier reopening of the road.

Try Lehigh Early Strength Cement on your next winter job. It will help you speed operations, cut costs.

LEHIGH EARLY STRENGTH CEMENT
LEHIGH PORTLAND CEMENT
LEHIGH AIR-ENTRAINING CEMENTS
LEHIGH MORTAR CEMENT

LEHIGH

PORTLAND CEMENT CO.

Allentown, Pa.

(Continued from page 122)

† **Missouri**—BA 12/29—U. S. Eng., 420 Locust St., St. Louis, Zone 2, constr. landside berm and repair of borrow pit scour Grand Tower Drainage and Levee Dist. Proj., Item III-A (S), Jackson Co., Ill. and Perry Co., Mo., on Grand Tower Island, in Perry Co., Mo., east bank of Mississippi River, CIVENG-23-065-56-44. CD 11/7.

† **Wyoming**—AIR COMPRESSORS, etc.—BA 1/5—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Sch. 1, Item 1, air compressor; Item 2, air compressor; Sch. 2, Item 3, air compressor unit; Item 4, warehouse truck for Item 3, Sch. 3, Item 5, aftercooler; Item 6, aftercooler; Sch. 4, Item 7, air receiver; Item 8, air receivers, for Glendo Power Plant, Glendo Unit, Oregon Trail Div., Missouri River Basin Proj. Spec. DS 4572. L. N. McClellan, ch. engr. CD 7/30/45.

BUILDINGS—BA

Tex., Baytown—SCHOOL—BA 12/16—Goose Creek Independent School Dist., Baytown, elementary school northeast of city, (Cedar Bayou School). $480,000. Lowell Lammers, Box 3220, archt. CD 7/13.

Minn., Owatonna—POWER PLANT—BA 12/20—City, Pub. Utilities Comn., L. R. Haberman, secy., imprv. municipal power plant, furnish equip. and constr. imprv. incl. mech., electric and pipe and equip. insulation, Sects. 6 and 7. $93,000. Stanley Eng. Co., Hershey Bldg., Muscatine, Iowa, engr.

Okla., Tulsa—WAREHOUSE—BA 12/20—Star Electric Co., 1015 N. Lewis St., warehouse, 6600 E. 14 St. $100,000. John Cushing, 4107½ E. 11 St., archt. CD 11/25.

Iowa, Burlington—HIGH SCHOOL—BA 12/21—Catholic Parishes of Burlington and West Burlington, Burlington, high school. $422,781. D. D. Morgan & Assocs., 217 F & M Bank Bldg., archts. CD 2/25.

Mo., Marshall—POWER PLANT—BA 1/10—City, power plant proj. Sect. 5 bldg. work, Sect. 8 erection of turbine and other equip., Item D coal handling equip., Item E, instruments and controls, Stanley Eng. Co., Hershey Bldg., Muscatine, Iowa, engr. CD 12/15/54.

▲ **Mo., Chillicothe**—POWER PLANT—BA 1/12—City, plant addn., bldg. work, electrical work, Total est. $1,385,000, Stanley Eng. Co., Hershey Bldg., Muscatine, Iowa, engr. CD 10/5.

▲ **Tex., Port Neches**—PLANTS—Bids Asked—Texas-U. S. Chemicals Co., Port Neches, pilot plant, $500,000; chemical plant expansion for production synthetic rubber, $1,500,000; some existing plant units remodeling, expanding, $750,000. Telletson Petroleum Instructors, c/o owners, engr. CD 11/16.

BUILDINGS—SLC

Iowa, Nevada—PLANT, OFFICE—Reuben H. Donnelley Corp., 350 E. Cermak St., Chicago, Ill., soon lets contract 1 story, 184x520 ft. and 76x80 ft. second floor, stone face, plant and office. The Griffith Co. Warden Bldg., Fort Dodge, archt.

Minn., Rochester—SCHOOL—E. V. Schaefer & Assoc., archts., 305 New York Bldg., St. Paul, soon let contract, 2 story, 60x200 ft. elementary school addn., for St. Pius X. Catholic Parish, Rochester, Minn. $500,000. CD 11/11.

HEAVY CONSTRUCTION—LB & CA

MISSOURI—State Hy. Dpt., Jefferson City,

Mo.—CLarkson Constr. Co., 4133 Gardner St., Kansas City, Mo. LB $110,366. (5 bidders) two 48 ft., one 64 ft., continuous concrete deck girder spans Sta. 204 plus 83, Jackson Co.;

Mo.—Union Constr. Co., 1401 Fairfax Trafficway, Kansas City, Kan. and **Swenson Constr. Co.**, 3305 Terrace St., Kansas City, Mo. LB $285,077. (2 bidders) two 95 ft., two 100 ft. continuous concrete girder spans, Sta. 93 plus 98, Jackson Co.; LB $88,350 (2 bidders) two 57 ft., two 88 ft. continuous concrete deck girder spans, Sta. 96 plus 95, Jackson Co.; LB $122,881. (2 bidders) two 40 ft., one 65 ft., continuous concrete slab spans Sta. 15 plus 98, Jackson Co.; LB $114,744. (2 bidders) two 450 ft. cantilever retaining wall, Sta. 59 plus 50, Jackson Co.; LB $118,793. (2 bidders) one 37 ft., one 56 ft., three 65 ft., one 48 ft., continuous rein.-con. slab spans Sta. 91 plus 41, Jackson Co. Bids Nov. 18. CD 11/4.

▲ **MISSOURI**—State Hy. Dpt., Jefferson,

Mo.—Regenhardt Constr. Co., Cape Girardeau, Mo. LB $336,544. (5 bidders) 24 ft. c. conc. 2.987 mi. Jackson Co.;

Mo.—Koss Constr. Co., 205 Farm Bureau Bldg., Des Moines, Iowa. LB $397,820. (5 bidders) c. conc. 3.329 mi., Jackson Co.;

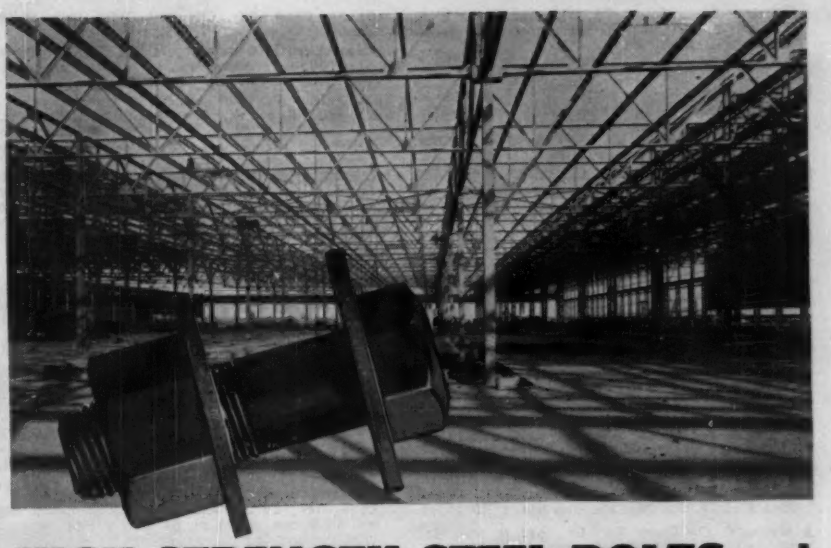
Mo.—Granite Bituminous Paving Co., 3943 Duncan St., St. Louis, Mo. LB $178,769. (3 bidders) 40 ft. b. conc. 4.081 mi. St. Louis Co.;

Mo.—Union Constr. Co., 1401 Fairfax Trafficway, Kansas City, Kan. LB $247,123. (5 bidders) c. conc. 0.272 mi. Jackson Co.;

Mo.—J. A. Tobin Constr. Co. & Maxwell Bridge Co., 3701 Rainbow Blvd., Kansas City, Kan. LB $555,725. (2 bidders) c. conc. 0.555 mi. Jackson Co.; LB $890,452. (2 bidders) c. conc. 0.284 mi., Jackson Co. Bids Nov. 18. CD 11/4.

Scott-Bain Constr. Co., Riss Bldg., Kansas City, Mo. LB $82,663, est. $100,000 water mains, WW imprvs., BETHANY, MO. City, Bethany, Mo. Kenneth Larkin & Assoc., 19 E. Gregory St., Kansas City, Mo., engrs. Bids Nov. 21. CD 6/8.

▲ **Kloster Co.**, 4607 Bock Ave., St. Louis 16, Mo. LB $922,400. general work, rubbish incinerator plant adjacent to foot of East Grand Ave., ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., St. Louis 3, Mo. Bids Nov. 22, CD 10/25;



HIGH STRENGTH STEEL BOLTS and MIL-CARB* (*Trademark) Carburized WASHERS

Used Exclusively on Steel Framing of New Caterpillar Tractor Plant

In the construction of the Caterpillar Tractor Company's new, modern plant at Decatur, Ill., (Caterpillar's sixth U. S. Plant) the Mississippi Valley Steel Co., of Decatur, specified High Strength Steel Bolts and MIL-CARB Washers exclusively for this important contract... supplied by GARY SCREW AND BOLT DIVISION, Pittsburgh Screw and Bolt Corporation, Gary, Ind.

This installation is typical of the rapidly growing recognition among structural engineers and contractors of the superior value of high strength bolted steel construction. More and more they are finding that hardened steel bolts, with properly hardened washers, can be torqued up to produce a greater clamping force than cooling of rivets . . . providing up to 25% higher fatigue resistance than comparable riveted joints . . . *plus* faster and more economical construction.

And because no bolt assembly is any better than its washers, high-strength bolting should include MIL-CARB Carburized Washers . . . fabricated from Prime Carburizing Quality Special Soundness Steel to insure uniform quality control, always equal to the rigid specifications for this type of construction.

Remember: **"NO BOLT IS ANY BETTER THAN ITS WASHERS"**

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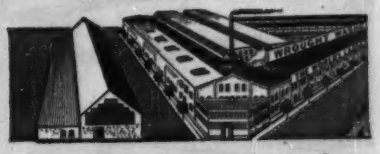


The World's Largest Producer of Washers

Fleischer—Seeger Constr. Co., 4900 Washington Blvd., St. Louis 8, Mo. LB $581,561. furnaces and appurtenances (St. Louis, Mo.);
W. R. Kellogg Co., 75 Maiden Lane, New York, N. Y. LB $148,888..chimneys (St. Louis, Mo.).

T. P. Constr. Inc., Wadena, Minn., LB $352,563, 626.29 mi. rural distr. lines, Nelson, Grand Forks, Walsh, Cass and Trail Counties, NORTH DAKOTA. Polar Rural Telephone Mutual Aid Corp., Grafton, N. D. Bids Nov. 17. CD 10/28.

† **American Elin Corp.,** 1 Wall St., New York, N. Y. LB $769,700. three outdoor auto-transformers; LB $93,120. one outdoor spare auto-transformer for Granite Falls Sub-station, Missouri River Basin Proj. Spec. DS 4549, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Nov. 15. CD 11/2.

General Electric Co., Electric Bldg., Omaha, Neb., CA $83,128, three sub-stations, GRAND ISLAND, NEB. City, City Hall, Grand Island, Neb. CD 9/24/53, under Public Buildings.

KANSAS—State Hy. Comn., Winfield,
Harry Henery, Inc., Ottawa, Kan. CA $76,413. (3 bidders) c. conc. 0.211 mi. Proj. 160-18 F 018-4 (2) Part I, Cowley Co.; CA $113,866. (3 bidders) c. conc. 0.308 mi. Proj. 160-18 F 018-4 (2) Part II, Cowley Co. Bids Nov. 17. CD 11/4.

† **Sharp Bros. Constr. Co.,** 1014 E. 19 St., Kansas City, Mo. LB $559,483. (12 bidders) Stage I developing approx. 1,000,000 sq. ft. cave area, Atchison, Atchison Co., KANSAS. U. S. Eng., 1800 Federal Office Bldg., Kansas City, Mo. Bids Nov. 9. CD 10/19.

▲ **Martin K. Eby Constr. Co., Inc.,** 610 N. Main St., Wichita, Kan. LB $2,829,860. ramp addns., WICHITA, KAN. Boeing Airplane Co., Plant No. II, Personnel Bldg., Wichita, Kan. Bids Nov. 18. CD 11/3.

Herman Groseclose & Assoc., 1916 N. Broadway, Oklahoma City, Okla., CA $52,600., est $55,000 well pumps tank and water distr. sys., CALVIN, OKLA. Town, Calvin, Okla. Herman Groseclose, 1915 N.W. 38 St., Oklahoma City 6, Okla., engr. Bids Nov. 15, awarded Nov. 14.

† **Otto Ashback Co.,** 2975 Hamline St., St. Paul, Minn., LB $182,309, est. $175,000, replacement of pavement and taxiways, Tinker Field, IFB 34-601-56-130. OKLAHOMA CITY, OKLA. Director Procurement, Tiner Air Force Base, Oklahoma City, Okla. Bids Nov. 10. CD 11/1.

Metropolitan Paving Co., 300 S. Indiana St., Oklahoma City, Okla., LB $195,287, est. $196,154, asph. paving S. E. 11, 12, 13, 14 Sts. from Durland to High St., OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. W. W. Baker, Oklahoma City, Okla., city engr. CD 7/27.

Layman & Son, Riverside Dr., Tulsa, Okla., LB $401,498, est. $402,000, asph. paving Admiral Pl. and 7th St., TULSA, OKLA. City, City Hall, Tulsa, Okla. W. R. Wooten, city engr. CD 3/5/52.

Lyntegar Electric Co-operative, Tahoka, Tex. Own Forces $110,000, some service lines to irrigation and cotton gins, Garza Co., TEXAS. CD 6/5/52.

TEXAS—State Hy. Comn., Austin,
Tex.—Austin Bridge Co., P. O. Box 1590, Dallas, Tex., LB $90,143, 0.842 mi. Clear Fork of Brazos River Bridge and approach Hy. US 180. Proj. C 296-5-6. Jones Co.;
Tex.—Jack Freeland & Co., 6637 W. Commerce St., San Antonio, Tex., LB $150,724, 0.949 mi. Pecos River Bridge and approach, grading, structures by and b. conc. pavement Hy. FM 305 and ST 51, Proj. S 486 (3), Crockett and Pecos Counties. Bids Nov. 22. CD 10/28.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—Thomas J. Evans Jr. & M. M. Pettyjohn, P. O. 478, South Houston, Tex., LB $2,715,180, 0.639 mi. Buffalo Bayou Bridge Hy. US 59, Proj. U 514 (18), Harris Co.;
Tex.—Trotti & Thomson, Inc., P. O. Box 70, Beaumont, Tex. LB $367,173, 0.82 mi. Village Creek Bridge and approach, grading structures Hy. US 69, Proj. F 355 (9), Hardin Co. Bids Nov. 23. CD 10/28.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—A & A Contractors, Olney, Tex., LB $80,133, grading structures, base and surf. 6.945 mi. Hy. FM 210 and 2178, Proj. S 746 (2), etc. Young and Archer Counties;
Tex.—Austin Bridge Co. & Austin Road Co., Box 1590, Dallas, Tex., LB $2,138,241. shell concrete base and hot mix b. conc. 6.593 mi. Hy. SH 73, Proj. IN 1052 (30) Chambers Co.;
Tex.—Ballenger Constr. Co., San Benito, Tex., LB $142,136, grading, structures, base, surf. 9.246 mi. Hy. FM 510, Proj. S 41 (4), Cameron Co.;
Tex.—Cage Bros., 6959 San Pedro St., San Antonio, Tex. LB $106,735, grading, structures, base, surf. 8.845 mi. Hy. FM 2229, Proj. S 2081 (1), Haskell Co.;
Tex.—J. M. Dellinger, Inc., P. O. Box 4227, Corpus Christi, Tex., LB $76,781, grading, structures, base, surf. 8.874 mi. Hy. FM 666, Proj. C 1052-1-11, Nueces Co.;
Tex.—E. W. Hable & Sons, Corsicana, Tex., LB $84,418, grading, structures, base, surf. 4.531 mi. Hy. FM 1448, Proj. S 2047 (1), Frinklin and Wood Counties;
Tex.—Allen Keller Co., P. O. Box 393, Fredericksburg, Tex., LB $98,079, grading, structures, base, surf., 6.129 mi. Hy. FM 2084, Proj. S 1130 (2), Tom Green and Schleicher Counties; LB $499,649, flexible base, two course surf. tr. 7.424 mi. Hy. ST 16, Proj. S 139 (2), Kerr Co.;
Tex.—Lott Constr. Co. Ltd., 4029 Bryan Ave., Fort Worth, Tex., LB $523,134, roadbed tr. 4.519 mi. Hy. US 77. Proj. IN 230 (2), Denton Co.;
Tex.—Ernest Loyd, Box 1120, Fort Worth, Tex., LB $623,765, flexible base, c. conc. pavement, hot mix b. conc. pavement 1.713 mi. Hy. Loop 213. Proj. UI 1101 (1), Tarrant Co.; LB $338,563, flexible base, two course surf. tr. 9.151 mi. Hy. FM 185. Proj. S 1070 (3), McLennan Co.; LB $168,452, grading, structures, flexible base, two course surf. tr. 20.22 mi. Hy. US 82, FM 264 and 1441. Proj. S 421 (3), Dickens Co.; LB $233,767, flexible base, two course surf. tr. 10.702 mi. Hy. SH 97. Proj. C 328-1-4, Wilson Co.; LB $98,062, grading, structures, base, surf. 6.735 mi. Hy. 2116, Proj. R 1077-1-2, Falls Co.;
Tex.—M. C. McLaughlin, Bryan, Tex., LB $251,715, grading, structures, base, surf. 9.516 mi. Hy. FM 2285, Proj. S 72 (1), etc., Hopkins Co.;
Tex.—Menefee Bros., P. O. Box 431, Center, Tex., LB $171,145, grading, structures, base, surf. 5.203 mi. Hy. FM 1293, Proj. S1886 (1), Hardin Co.;
Tex.—Reynolds & Huff, Box 88, Tyler, Tex., LB $111,527, grading, structures, base, surf. 7.325 mi. Hy. FM 1696, Proj. S 1727 (3), Walker Co.;
Tex.—Schwope Eng. Constr. Co., Box 15066, Houston, Tex., LB $212,113, grading, structures, base, surf. 7.384 mi. Hy. FM 2235, Proj. S 2076 (1), etc., Calhoun Co.;
Tex.—South Texas Constr. Co., P. O. Box 3536, Corpus Christi, Tex., LB $543,470, foundation course, b. conc. 8.019 mi. Hy. US 59, Proj. C 27-8-37, Fort Bend Co. Bids Nov. 22. CD 10/28, 11/7.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—Austin Contr. Co., P. O. Box 1590, Dallas, Tex. LB $156,373, grading, structures, base, surf. 8.661 mi. Hy. FM 71, Proj. S 49 (3), etc., Titus Co.;
Tex.—R. B. Butler, Inc., and Dan Pennington, P. O. Box 471, Bryan, Tex., LB $155,939, grading, structures, base, surf. 9.874 mi. Hy. FM 2238, Proj. S 2036 (1), Fayette Co.;
Tex.—Central Constr. Co., Inc. and Joe W. Hendrix & Sons, P. O. Box 12116, Dallas, Tex., LB $977,006, c. conc. pavement and stabli. shoulders 4.1 mi. Hy. US 67, Proj. E 10-12-15 Bowie Co.

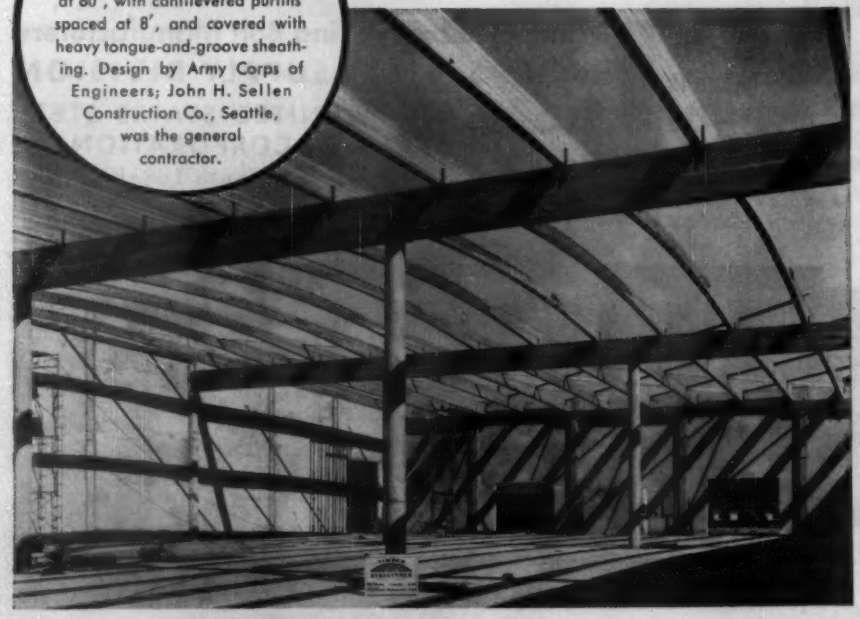
Tex.—Fred Hall & Son, Valley Mills, Tex., LB $84,372, grading, structures, base, surf. 3.837 mi. Hy. FM 1220, Proj. S 1981 (2), Tarrant Co.;
Tex.—Ernest Loyd, P. O. Box 1120, Fort Worth, Tex., LB $585,476, flexible base, two course surf. tr. 16.871 mi. Hy SH 132, Proj. S 661 (2), Wheeler Co.; LB $156,312, grading, structures, base, surf. 15.99 mi. Hy. FM 1151, Proj. S 2008 (1), Randall and Armstrong Counties; LB $797,978, grading, structures 10.158 mi. Hy. US 81, Proj. IN 40 (14), Bell Co.; LB $106,559, grading, structures, base, surf. 12.561 mi. Hy. FM 818, Proj. S 2082 (1), etc. Howard Co.;
Tex.—Hugh McMillan, P. O. Box 1227, El Paso, Tex., LB $682,765, grading, structures, Railroad relocation, storm sewer, base and conc. and HMAC pavements, 1.026 mi. Hy. US 80, Proj. IN 439 (28), El Paso Co.;

(Continued on page 128)

Design for Fewer Posts

with Cantilevered Glulam Beams

180′ x 100′ bay of Mt. Rainier Ordnance Depot near Tacoma, Wash. Beams are spaced at 60′, with cantilevered purlins spaced at 8′, and covered with heavy tongue-and-groove sheathing. Design by Army Corps of Engineers; John H. Sellen Construction Co., Seattle, was the general contractor.



This warehouse shows how cantilevered beams and purlins lengthen normal spans and increase the size of open floor areas. Only four posts were used for 18,000 square feet of space.

Glulam beams require practically no jobsite assembly. Sidewalls are low, with no waste overhead space to heat and cool. Beams "stay put" without maintenance.

When combined with heavy timber decking and walls of concrete or masonry, glulam beams qualify for class II rating, with excellent fire resistivity and favorable fire insurance rates.

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Trench hoe solves difficult problem at Oahe Dam

Shale loading speeded up with use of trench hoe

Ingenuity always pays off — as it is for Pierre Constructors, excavating the stilling basin at Oahe Dam, Pierre, South Dakota. Approximately 114 thousand yards of tough shale must be excavated for construction of the huge basin.

Early phases of this excavation were handled with a shovel but Pierre Constructors realized that precise side wall cuts and accurate grade levels were not feasible by this method. H. B. Bruce, Project Manager for Pierre Constructors, pioneered the thought that a Manitowoc 1¼ Yd. trench hoe could do the job. The hoe has been operated from above and to the sides of the cuts and has not been confined to operation into the face of the excavation as a shovel would be. The results speak for themselves. More yardage has been removed and more important, accurate grades and precise faces have been maintained throughout the project.

Boom stiffness, unusual stability, and power to spare allow this hoe to work from any position and excavate shale without the need of blasting. The versatile Manitowoc uses a maximum of four passes in two minutes time, loading 6 Yd. trucks. Smooth torque converter drive plus air controls enable the operator to handle anything the bucket encounters with ease.

HOE HAS MANY OUTSTANDING FEATURES

This sturdy Manitowoc Hoe can dig down to 25'6", reach out 38' and can dump into the trucks with ease at any loading level. Extremely mobile, the 1¼ yd. Model 2000 can be moved as easily as a small machine. The counterweight is self-removing, enabling the hoe to be trailer moved across country — from job to job — and of course can be easily converted to shovel, crane or dragline as the operation requires. Full information on this unit, as well as sizes ranging up to 5½ yd., may be obtained from the MANITOWOC ENGINEERING CORP., MANITOWOC, WIS.

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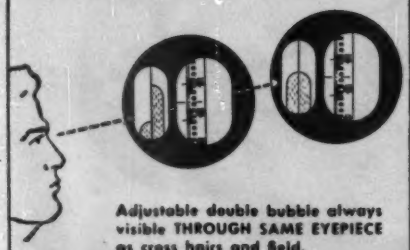

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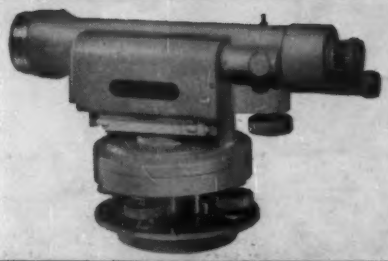

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NAME.....

ADDRESS.....

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(Continued from page 126)

Tex.—M & N Constr. Co., Inc., 8406 Mosley So., Houston, Tex., LB $162,687, grading, structures, base, surf. 5.003 mi. Hy. FM 2234. Proj. S 2054 (1), Fort Bend Co.;

Tex.,—Moore Bros. Constr. Co. & Gulf Bitulithic Co., Lufkin, Tex., LB $84,610, c. conc. 0.36 mi. Hy. SH 94, Proj. C 319-4-21, etc. Angelina Co.;

Tex.—J. W. Perry, 501 Insurance Bldg., San Antonio, Tex. LB $221,398, grading, structures, base, surf. 2.015 mi. Hy. ST 97, Proj. C 483-1-11&12, LaSalle Co.;

Tex.—Perry Constr. Co., 501 Insurance Bldg., San Antonio, Tex., LB $108,471, grading, structures, base, surf. 8.834 mi. Hy. FM 2133, Proj. R 826-3-1, Runnels Co.;

Tex.—H. Ratliff & Dan Pennington, Rogers, Tex., LB $442,515, grading, structures, base, surf. 7.991 mi. Hy. FM 1093 Proj. S 85 (5), etc., Austin and Wharton Counties;

Tex.—M. E. Ruby, San Marcos, Tex., LB $520,478, flexible base, two course surf. tr. and b. conc. 11.117 mi. Hy. US 271, Proj. F 723 (1) and (2), Burnet and Blanco Counties;

Tex.—Strain Bros., Inc., P.O. Drawer 1631, San Angelo, Tex., LB $844,355, flexible base, b. conc. 17.355 mi. Hy. US 80, Proj. F 263 (9), Ward, Crane and Ector Counties;

Tex.—C. Hunter Strain, P. O. Drawer 1631, San Angelo, Tex., LB $1,019,769, flexible base, b. conc. 20.797 mi. Hy. US 80, Proj. IN 444 (23) (37), etc. Taylor Co.;

Tex.—Dean Word Co., P. O. Box 330, New Braunfels, Tex. LB $538,643, foundation course, flexible base, b. conc. 6.306 mi. Hy. US 81, Proj. IN 66 (12), Comal Co. Bids Nov. 23. CD 10/28, 11/7.

▲ **TEXAS—Texas Turnpike Auth.,** 214 First Federal Savings Bldg., Austin, Zone 1,

TTA—Austin Bridge Co., P. O. Box 1590, Dallas, Tex., LB $804,429, Contr. D-FW 31, continuous rolled beam bridges at T. & P. R.R. spur near Grand Prairie, Gifford-Hill R.R. spur and Mountain Creek, Dallas Co.;

TTA—Ottinger Constr. Co., P. O. Box 12305, Forth Worth, Tex., LB $864,985, Contr. D-FW 32, Continuous rolled beam and plate girder bridges at Loop 12 and T. & P. R.R. Loop 12 Interchange, Chalk Hill Rd. and T. & P. R.R. spur near Loop 12, Dallas Co. Bids Nov. 23. CD 11/2.

TEXAS—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,

Austin Bridge Co., P. O. Box 1590, Dallas, Tex., LB $550,128, Contr. D-FW 30, continuous rolled beam and plate girder bridges, FM 157 Interchange (3 bridges) Watson School Rd. Interchange, (2 bridges) at Johnson Creek. Tarrant Co. Bids Nov. 22. CD 11/2.

▲ **TEXAS—Texas Turnpike Auth.,** 214 First Federal Savings Bldg., Austin, Zone 1,

Cage Bros., 6959 San Pedro St., San Antonio, Tex., LB $1,818,806, Contr. D-FW 26, grading, drainage 4.795 mi. from 0.36 mi. west of Duncan-Perry Rd. to Meyers Rd., Dallas Co. Bids Nov. 22. CD 11/2.

City, Abilene, Tex. Own Forces. $95,000, storm sewers; $75,000, sanitary sewer rehabilitation work, ABILENE, TEX. CD 7/26/54.

City, Abilene, Tex. Own Forces. $125,000. misc. WW sys.; $90,000, water distr. lines, AMARILLO, TEX.

J. M. Odom, c/o owner, CA $90,000, rein.-con. swimming pool, AUSTIN, TEX. Westwood Country Club, 4705 Parkcrest Ave., Austin, Tex.

† **Officer in Charge of Constr., Naval Air Advanced Training Command,** Naval Air Station, Corpus Christi, Tex., cancelled bids to have been opened Dec. 13, const addnl. high speed apron refueling sys. Naval Auxiliary Air Station, Chase Field, NOY 89000, Spec. 47891, BEEVILLE, TEX. CD 11/10.

Layne Neighborhood, via Denison, Tex. Purchase and Hire. $45,000, water distr. sys. lines, DENISON, TEX.

West Texas Constr. Co., Inc., Box 5067, Lubbock, Tex. LB $170,360, est. $175,000, street imprvs., Incl. 56,740 ft. concrete curb and gutter, 76,440 sq. yd. asph. paving, appurtenances, FRIONA, TEX. City, Friona, Tex. Bids Nov. 17. CD 11/3.

Centex Constr. Co., 4606 Greenville St., Dallas, Tex. Own Forces. $80,000, constr., and asph. paving new streets, curb and gutter, GRAND PRAIRIE, TEX.

Centex Constr. Co., 4606 Greenville St., Dallas, Tex. Own Forces. $45,000, water lines, facilities, GRAND PRAIRIE, TEX.

Centex Constr. Co., 4606 Greenville St., Dallas, Tex. Own Forces. $75,000, storm sewers; $77,500, sanitary sewers, GRAND PRAIRIE, TEX. CD 10/28.

Centex Constr. Co., 4606 Greenville St., Dallas, Tex. Own Forces. $75,000, natural gas lines, GRAND PRAIRIE, TEX.

Centex Constr. Co., 4606 Greenville St., Dallas, Tex. Own Forces. $48,115, bldg. site area earthwork, grading, GRAND PRAIRIE, TEX.

Robert P. Puig, The Builder, 3829 Villanova St., Houston, Tex., CA $47,716, c. 1. water lines, HOUSTON, TEX. Memorial Forest, c/o Rob. P. Puig & H. W. Edmunds, 3829 Villanova St., Houston, Tex.

Robert P. Puig, The Builder, 3829 Villanova St., Houston, Tex., CA $105,510, sanitary-storm sewers, HOUSTON, TEX. Memorial Forest, c/o Rob. P. Puig & H. W. Edmunds, 3829 Villanova St., Houston, Tex.

Robert P. Puig, The Builder, 3829 Villanova St., Houston, Tex., CA $75,000, constr., asph. paving new streets, curb and gutter, HOUSTON, TEX. Memorial Forest, c/o Rob. P. Puig & H. W. Edmunds, 3829 Villanova St., Houston, Tex.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex. CA $75,000, area lighting sys. HOUSTON, TEX. Post Oak Center, Inc., c/o Kagan & Rudy, 905 Commerce St., Houston, Tex. CD 7/20.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex. CA $81,115, sanitary-storm sewers, HOUSTON, TEX. Post Oak Center, Inc., c/o Kagan & Rudy, 905 Commerce St., Houston, Tex. CD 7/21.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex. CA $109,110, hard paved parking center for auto parking; CA $87,000, shopping center area grading, general earthwork, HOUSTON, TEX. Post Oak Center, Inc., c/o Kagan & Rudy, 905 Commerce St., Houston, Tex. CD 7/20.

Broughton & Ericson, 3402 McFarlin St., Dallas, Tex. LB $102,578, est. $85,000, water pump plant imprvs., sewage treatment plant, KERENS, TEX. City, Kerens, Tex. Bids Nov. 17. CD 11/3.

Burton Constr. & Shipbuilding Co., Port Arthur, Tex. Own Forces. $292,000, marine railway drydocks; $319,000, bulkhead; $110,000, boat basin, PORT ARTHUR, TEX. Grand total $721,000. CD 8/12.

† **Colglazier & Hoff,** 326 Old Seguin Rd., San Antonio, TEX., CA $119,192, est. $200,000. replace water mains, RANDOLPH AIR FORCE BASE, TEX. U. S. Govt., Dpt. of Air Force, Base Procurement Office, Randolph Field, San Antonio, Tex. Bids Aug. 24. CD 8/16.

George M. Underwood Jr. & Assocs., New Belt Line Rd., Richardson, Tex. Force Account. $75,000, storm sewers; $80,000, sanitary sewers, RICHARDSON, TEX. CD 8/4.

George M. Underwood Jr. & Assocs., New Belt Line Rd., Richardson, Tex. Force Account. $48,500, water lines, facilities. RICHARDSON, TEX.

George M. Underwood Jr. & Assocs., New Belt Line Rd., Richardson, Tex. Force Account. $75,000, natural gas lines, RICHARDSON, TEX.

George M. Underwood Jr. & Assocs., New Belt Line Rd., Richardson, Tex. Force Account. $52,500, site earthwork, grading, RICHARDSON, TEX.

George M. Underwood Jr. & Assocs., New Belt Line Rd., Richardson, Tex. Force Account. $82,500, concrete paved new streets, concrete curb and gutter, RICHARDSON, TEX.

Brazos Electric Power Co-Operative, Amicable Bldg., Waco, Tex. Own Forces. $250,000, some sub-station erection, WACO, TEXAS. CD 6/6.

† **D. D. Skousen & Son,** Springer Bldg., Albuquerque, N. M., LB $439,016, est. $413,388 monolithic concrete in siphon; LB $454,331, est. $433,324 precast-concrete pipe in siphon for earthwork and structures for Atrisco Siphon and appurtenant features, Middle Rio Grande Proj., Spec. DC 4541, NEW MEXICO. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Nov. 15. CD 10/17.

BUILDINGS—LB & CA

Swedberg Constr. Co., Detroit Lakes, Minn. CA $871,-128. general contract two HIGH SCHOOL addns., AURORA, MINN. Bd. Educ., D. Cuzzo, clk., Aurora, Minn. CD 11/2, under LB.

A. Hedenberg & Co., 4641 E. Superior St., Duluth, Minn. CA $539,000. Elementary SCHOOL, BIWABIK, MINN. Bd. Educ., Sarah Anzelo, clk., Biwabik, Minn. CD 11/23, under LB.

G. F. Cook Constr. Co., 2833 Lyndale Ave. S., Minneapolis, Minn. CA Approx. $93,000. general contract 1 story, 82x90 ft. WAREHOUSE-OFFICE, 210 Garfield Ave., DULUTH, MINN. Phillippi Equipment Co., 6104 Excelsior Blvd., Minneapolis, Minn. Brandhorst & Leadholm, 4929 Minnetonka Blvd., Minneapolis, Minn., archts.

Ring Constr. Co., Metropolitan Bldg., Minneapolis 2, Minn. LB $399,745. (7 bidders) general contract JUVENILE DETENTION HOME, Sixth St. between Ninth and Tenth Aves. South, MINNEAPOLIS, MINN. Hennepin Co., Budget & Purch. Dpt., Court House, Minneapolis, Minn. Bids Nov. 22. CD 10/28.

E. M. Ganley Co., Inc., 2922 Oakland Ave., Minneapolis, Minn. CA $405,224. (11 bidders) general contract 1 story, 255x286 ft. OFFICE, Hy. 36, ROSEVILLE (P. O. ST. PAUL) MINN. State Farm Insurance Co., Bloomington, Ill. CD 11/17.

Lovejoy Constr. Co., 1118 Mulberry St., Des Moines, Iowa, CA $974,000 PATIENTS HOUSING, State Hospital and School, WOODWARD, IOWA. State Bd. Control, Capitol Bldg., Des Moines, Iowa. Bids Nov. 10. CD 11/25, under LB.

Lehr Constr. Co., 2115 Frederick St., St. Joseph, Mo. CA Approx. $125,000. WAREHOUSE, ST. JOSEPH, MO. Atchison, Topeka & Santa Fe R.R. Co., T. A. Blair, ch. engr., 80 E. Jackson Blvd., Chicago, Ill.

▲ **Burton W. Duenke Bldg. Co.,** 280 Horseshoe Dr., Kirkwood 22, Mo. CA Est. $2,500,000, 200 RESIDENCES in Harwood Hills subdivision on Bopp Rd. between Clayton and Manchester Rds., ST. LOUIS CO, MO. Burton W. Duenke, Arrowhead Lane, St. Louis 22, Mo.

▲ **Rorick Constr. Co.,** 905 S. 20 St., Omaha, Neb., CA $1,026,213, general constr. West Side SCHOOL (Indian Hills School), 32 and U Sts., OMAHA, NEB. Bd. Educ., 3902 Davenport St., Omaha, Neb. Bids Nov. 9. CD 11/15, under LB.

Hunter & Lundberg, Manhattan, Kan. LB $933,000. general contract married students DORMITORIES Kansas State College, MANHATTAN, KAN. State, Admin. Dpt., State House, Topeka, Kan. Bids Nov. 18. CD 10/31.

▲ **Charles Bennett Constr. Co.,** 114 Taylor St., Topeka, Kan. and **Fidelity Inv. Co.,** Central Bldg., Topeka, Kan. CA Est. $2,500,000. 140 HOUSES, 23 and Fairlawn Sts., TOPEKA, KAN. Victor Loebsack, RFD No. 7, Topeka, Kan.

(Continued on page 130)

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553

(Continued from page 128)

▲ **Martin K. Eby Constr. Co., Inc.,** 610 N. Main St., Wichita, Kan. LB $1,544,000. general contract BANK Addn., WICHITA, KAN. Fourth National Bank, N. Market St., Wichita, Kan. Bids Nov. 15. CD 10/26; Ripstra & Turner Co., 1015 E. Douglas St., Wichita, Kan. LB $711,484. mechanical work. (Wichita, Kan.).

G. E. Bass Co., Box 1023, Jackson, Miss., LB $822,-053, est. $750,000. OFFICE, N. W. 50 and Ross Sts., OKLAHOMA CITY, OKLA. Sohio Petroleum Co., Skirvin Tower Bldg., Oklahoma City, Okla. CD 7/5.

J. R. Dry & Sons, Winters, Tex. Purchase and Hire. $250,000, 1 story masonry industrial type PLANT units, ABILENE, TEX. CD 8/18.

The Cato Corp., c/o C. Grady Cates, 9747 Harry Hines Blvd., Dallas, Tex. Owner Builds. $373,000, Job 12, 36 DWELLINGS, FARMERS BRANCH, TEX. CD 8/18.

Robert P. Puig, The Builder, Erection Div., 3829 Villanova St., Houston, Tex., CA $373,335, 15 DWELLINGS; CA $348,000, 9 DWELLINGS, HOUSTON, TEX. Memorial Forest, c/o Rob. P. Puig & H. W. Edmunds, 3829 Villanova St., Houston, Tex. CD 9/28.

Briargrove Land Co., c/o R. L. Phillips, Almeda-Genoa Rds., Houston, Tex. Own Forces. $419,000, 22 DWELLINGS; $350,000, 10 masonry DWELLINGS, HOUSTON, TEX. CD 9/28.

Marvin Henry Builders, Inc., 2002 Chippendale St., Houston, Tex. Own Forces. $445,000, Group No. 14, 48 DWELLINGS, PASADENA, TEX. CD 3/15.

Gaskin Brothers, Inc., Contractors, 833 Bandera St., San Antonio, Tex. Owner Builds. $367,500, 31 DWELLINGS, SAN ANTONIO, TEX. CD 9/30.

Cox Constr. Co., 1210 W. Laurel St., San Antonio, Tex. Owner Builds. $348,110, 17 DWELLINGS, SAN ANTONIO, TEX. CD 9/30.

† **O. G. Bradbury,** Box 1628, Albuquerque, N. M. LB $100,798. AEC Area 111, Bldgs. 6570 and 6571, Sandia Base, ENG-292-56-6, ALBUQUERQUE, N. M. Atomic Energy Comn., Albuquerque, N. M. Bids Nov. 8. CD 10/19.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Calif., Herlong**—STORAGE FACILITIES, etc.—BA 12/16—U. S. Eng., 1209 8 St., Sacramento, special storage and servicing facilities, Sierra Ordnance Depot, incl. water, sanitary sewer, acid waste, chemical waste, electrical, lightning protection and ground sys., etc. change house and storehouses. $300,000. CD 8/18.

† **Arizona-California**—ANCHOR BOLTS, etc.—BA 12/20—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Sch. Item 1, anchor bolts for 3 radial gates, Item 2 embedded metal work for 3 radial gates for Palo Verde Diversion Dam, Palo Verde Diversion Proj., Spec. DS-4569. L. N. McClellan, ch. engr.

† **Calif., Muroc**—SWIMMING POOL—BA 12/20—U. S. Eng., 751 S. Figueroa St., Los Angeles, airmen's swimming pool, Edwards Air Force Base, ENG-04-353-56-46, $150,000. CD 7/8.

† **Calif., Muroc**—SHOP—BA 12/21—U. S. Eng., 751 S. Figueroa St., Los Angeles, base machine shop addn., Edwards Air Force Base, Eng.-04-353-56-61, $200,000. CD 8/30/54.

† **Calif., March Air Force Base**—DORMITORIES—BA 12/23—U. S. Eng., 751 S. Figueroa St., Los Angeles, airmen's dormitories, March Air Force Base, ENG-04-353-56-49. $500,000. CD 9/26.

† **Oregon- Washington**—BA 1/1—U. S. Eng., Pittock Block, Portland, Ore., two air circuit breakers and 9 current transformers, The Dalles Dam, Klickitat Co., Wash. Civeng.-35-026-56-90. CD 11/18.

† **California**—BA 1/4—Bureau Reclamation, Dpt. Interior, Lindsay, Shafter-Wasco Laterals, Lateral 134.4, Station 0 plus 00 to Station 249 plus 25; Lateral 137.2, Station 0 plus 00, to Station 56 plus 49.8, Shafter-Wasco Irrigation Dist., Friant-Kern Canal Distribution Systems, Central Valley Proj., near Shafter and Wasco, in Kern Co., Spec. DC 4577; adv. ENR 12/8. CD 4/20/45.

† **Arizona-Nevada-California**—EQUIPMENT—BA 1/5—Bureau Reclamation, Dpt. Interior, Phoenix, Ariz., installing supervisory control and telemetering equipment for Phoenix, Maricopa, Coolidge, ED-5, Buckeye and Oracle Sub-stations and Phoenix Dispatch Office, Parker-Davis Proj. Spec. DC 4574. CD 9/21/44, under Earthwork, etc.

† **Utah**—SWITCHGEAR ASSEMBLY—BA 1/19—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnish, deliver fob cars shipping point or fob cars Wallsburg for carload shipments and Heber for less-than-carload shipments, Schedule, Item 1, one indoor, metal-clad switchgear assembly, for Deer Creek Power Plant, Provo River Proj. INV. DS 4576.

† **Oregon**—BA 2/2—U. S. Eng., Pittock Block, Portland, one portable and one stationary oil purifier, The Dalles Dam Powerhouse, Wasco Co. CIVENG-35-026-56-91. CD 11/18.

BUILDINGS—BA

▲ **Calif., Pasadena**—CITY COLLEGE—BA 12/20—Pasadena Bd. Educ., 351 S. Hudson Ave., City College addns., rehabilitation. $1,060,000. R. H. Ainsworth, 1199 E. Walnut St., archt. CD 8/11/54.

▲ **Wash., Olympia**—SCHOOL—BA 12/21—School Dist. No. 1, 116 N. Columbia St., 72,000 sq. ft., 1 story, rein.-con., masonry Junior High School. $1,000,000. Plans deposit $50. Wohleb & Wohleb, 715 S. Washington St., archts. CD 11/9/54.

BUILDINGS—SLC

Ore., Portland—HOSPITAL—St. Vincent's Hospital, 2447 N. W. Westover Rd., soon lets contract, 8-story concrete hospital addn. John W. Maloney, Central Bldg., Seattle, Wash., archt. CD 12/3/54.

HEAVY CONSTRUCTION—LB & CA

▲ **UTAH**—State Road Comn., Salt Lake City,
Peter Kiewit Sons Co., Idaho Falls, Idaho, LB $1,923,-000, 3.492 mi. Parleys Canyon US Hy. 40, four lanes, Salt Lake Co. Bids Nov. 22.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,
Pioneer Constructors, Box 2768, Tucson, Ariz., CA, $378,-527, new alignment, placing road foundations and surf. plant mix asph., seal coat 7 mi. U. S. 66 Holbrook-Lupton Section, Navajo Co. Awarded Nov. 19. CD 6/17.

▲ **Kaiser Engineers, Inc.,** 1924 Broadway, Oakland, Calif., and **Jones & Laughlin Steel Corp.,** 3 Gateway Center, Pittsburgh, Pa., CA supplying pipe for natural gas distribution systems in Lewiston, Idaho, Baker and Pendleton, Ore., Walla Walla, College Place, Clarkston, Kennewick, Prosser, Grandview, Sunnyside, Toppenish, Granger, Zillah, Wapato, Yakima, Wenatchee, Anacortes, Burlington and Bellingham, Wash. WASHINGTON-OREGON-IDAHO. Cascade Natural Gas Corp., Securities Bldg., Seattle 1, Wash. CD 8/12.

† **W. L. Ridge Constr. Co.,** E. 3122 Sharp St., Spokane, Wash., CA, $119,073, est. $145,000. single circuit, 230-kv transmission line 19,500 ft. long to service production area at Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Oct. 26. CD 10/6.

▲† **Morrison-Knudsen Co., Inc.,** 319 Broadway, Los Angeles, Calif., LB, $1,869,580, est. $1,903,200. (5 bidders) 80x200x32 ft. and 120x134x36 ft. rein.-con., steel pumping plants addns., three 20x40x12 ft. offices addns., etc., Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Nov. 22. CD 10/28.

West Coast Constr. Co., 4608 36 Ave. S. W., Seattle, Wash., LB, $332,949, (8 bidders) Sch. III, 4 tunnels for irrigation system, SELAH, WASH. Naches-Selah Irrigation Dist., Selah, Wash. Bids Nov. 21. CD 11/14;
Cherf Bros. & Sandkay, Ephrata, Wash., LB $97,-629, Sch. 1, control structures, flumes, etc. (Selah, Wash.);
H. M. Skov, Yakima, Wash., LB $85,869 Sch. II (5 bidders), flumes (Selah, Wash.).

▲ **Kaiser Engrs., Inc.,** 1924 Broadway, Oakland, Calif., **A. O. Smith Corp.,** 3533 N. 27 St., Milwaukee, Wis. and **Jones & Laughlin Steel Corp.,** 3 Gateway Center, Pittsburgh, Pa., CA supplying pipe for natural gas distribution system in and near SPOKANE, WASH. Spokane Gas & Fuel Co. N. 25 Monroe St., Spokane, Wash. CD 6/25/54.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Guy F. Atkinson Co., 10 West Orange Ave., South San Francisco, Calif., CA $1,294,763, grading, surf. 2 mi. U. S. 99 between Crespos and Vollmers Shasta Co. Bids Nov. 2, awarded Nov. 21. CD 11/7, under LB.

General American Transportation Corp., 900 Wilshire Blvd., Los Angeles, Calif., LB, $125,721, est. $100,-000. 5 steel reservoirs, CUCAMONGA, CALIF. Cucamonga County Water Dist., Cucamonga, Calif. Bids Nov. 16.

A. B. C. Constr. Co. of Calif., 12420 S. Bloomfield Ave., Norwalk, Calif., CA, $521,737, Eagle-Rock-Hollywood Conduit, Unit V, LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 311 S. Spring St., Los Angeles, Calif. Bids Oct. 10, awarded Nov. 15. CD 10/14, under LB.

J. A. McNeil Co., 3115 W. Mission Rd., Alhambra, Calif., CA, $630,000, 8,300 sq. ft. MAUSOLEUM addn., EAST LOS ANGELES, CALIF. Roman Catholic Archbishop of Los Angeles, 809 S. Flower St., Los Angeles, Calif. Montgomery & Mulloy, 1109 N. Vermont Ave., Los Angeles, Calif., archts.

BUILDINGS—LB & CA

▲ **Kitchell Phillips,** 1706 W. Buchanan St., Phoenix, Ariz., CA Est. $1,300,000; 2 story, 80,000 sq. ft. rein.-con. DEPARTMENT STORE, PHOENIX, ARIZ. Goldwater's, Inc., Park Central, Phoenix, Ariz. Welton Becket & Assocs., 5647 Wilshire Blvd., Los Angeles, Calif., archts. CD 2/21/53.

▲ **Weyerhaeuser Timber Co.,** Tacoma Bldg., Tacoma, Wash. Day Labor. $1,000,000. chlorine and caustic soda mfg. PLANT, LONGVIEW, WASH.

▲† **George A. Fuller Co.,** 3100 W. 8 St., Los Angeles, Calif., CA, $1,230,400. buildings and structural phase No. 2, Coca Area, Santa Suzana for Atomic Energy Comn., Wash., D. C., CALIFORNIA. North American Aviation, Inc., 12241 Lakewood Blvd., Downey, Calif. Bids Sept. 19, awarded Nov. 15. CD 9/22, under LB.

Geo. Holstein & Sons, 166 E. 17 St., Costa Mesa, Calif., CA, $351,000. 34 frame, stucco DWELLINGS, Tract 2425, ANAHEIM, CALIF. Nutwood Ball Co., 166 E. 17 St., Costa Mesa, Calif.

Jack H. MacDonald Co., Inc., 48943 Wilshire Blvd., Los Angeles, Calif., CA, $190,000. 195x280 ft. precast concrete WAREHOUSE, ARTESIA, CALIF. McKesson-Robbins, 8943 Wilshire Blvd., Los Angeles, Calif.

Wm. C. Crowell Co., 170 E. Colorado St., Pasadena, Calif., LB, $502,920, est. $500,000 (3 bidders) Ben Lomond School, AZUSA, CALIF. Gladstone School Dist., 18022 E. Gladstone St., Azusa, Calif. Bids Nov. 17. CD 3/21.

Taylor & Clark, 10691 Magnolia Ave., Arlington, Calif., CA, $583,316, frame, stucco Cypress SCHOOL bldgs., COVINA, CALIF. Covina School Dist., 475 N. 2 St., Covina, Calif. Awarded Nov. 18. CD 11/16, under LB.

Theisen Co., 358 Del Monte St., Pasadena, Calif., CA, $430,000, 14,000 sq. ft. CHURCH, 10195 W. Washington Blvd., CULVER CITY, CALIF. Roman Catholic Archbishop of Los Angeles, 809 S. Flower St., Los Angeles, Calif.

Jack H. MacDonald, 8943 Wilshire Blvd., Beverly Hills, Calif., CA, $287,000, 82,000 sq. ft. STORAGE, 5353 Jillson St., EAST LOS ANGELES, CALIF. Milford Chemical Co., 8943 Wilshire Blvd., Beverly Hills, Calif. Wm. M. Taggart, 3123 W. 8 St., Los Angeles, Calif., engr.

Walter R. Saut & Sons, 1461 San Marino Ave., San Marino, CA, $375,200. 27 frame, stucco DWELLINGS, Marloma St., LOMITA, CALIF. Bollinger Estates, Inc., 5300 Montemalaga Dr., Rolling Hills, Calif. Ed. H. Fickett, 5657 Wilshire Blvd., Los Angeles, Calif., archt.

J. C. Boriase Co., 1630 Silver Lake Blvd., Los Angeles, Calif., CA, $450,000, CONVENT and NURSES HOME, LYNWOOD, CALIF. Sisters of St. Francis, 3630 Imperial Hy., Lynwood, Calif. Hugh B. Davis, Security Bldg., Long Beach, Calif., archt. CD 5/22/50.

James I. Barnes Constr. Co., 1119 Montana Ave., Santa Barbara, Calif., CA, $823,900, CLASSROOM and OFFICE BLDG., Goleta, SANTA BARBARA, CALIF. University of California, Santa Barbara Campus, Goleta, Calif. Bids Sept. 7. CD 9/14, under LB.

Bill A. Smith & Son, 8065 W. 3 St., Los Angeles, Calif., CA, $350,636, est. $300,000. 29,000 sq. ft. Arlington SCHOOL, TORRANCE, CALIF. Torrance Unified School Dist., 2335 Plaza Del Amo, Torrance, Calif. George F. Schneider, 5445 E. Washington Blvd., Los Angeles, Calif., archt. Awarded Nov. 15. CD 3/4/52.

Nylin P. Hurd, 1317 Santiago Ave., Santa Ana, Calif., LB $912,196, est. $783,000, reinforced brick, Santa Fe HIGH SCHOOL, WHITTIER, CALIF. Whittier Union High School Dist., 610 Philadelphia St., Whittier, Calif. Bids Nov. 16. CD 10/24.

CANADA

HEAVY CONSTRUCTION—BA

Man., Gimli—HEATING SYSTEM—BA 12/14—Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. P.M.O. heating system alterations R.C.A.F. Station. $150,000. Plans deposit $25.

Newfoundland, Stephenville—AIR TERMINAL—BA 12/14—Dpt. Transport, Hunter Bldg., Ottawa, Ont. air terminal, Stephenville Airport. $250,000. Plans deposit $25.

▲ **Quebec**—BA 12/20—St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont., St. Lambert lock and approaches, Lachine Section of St. Lawrence Seaway. $8,000,000. Plans deposit $100. A. Gordon Murphy, c/o owner, 685 Cathcart St., Montreal, ch. engr. CD 8/8.

BUILDINGS—BA

Que., Ste. Genevieve des Pierrefonds—SCHOOLS—Bids Asked—La Commission Scolaire No. 1 de Ste. Genevieve des Pierrefonds, Ste. Genevieve des Pierrefonds, 2 story, bsmnt., 70x300 ft., rein.-con., brick school. $425,000. Lapointe & Tremblay, 3534 Cote des Neiges Rd., Montreal, archts. Beaulieu, Dubuc, Trudeau, Lalancette & Beaulieu, 4151 Sherbrooke St. W., Montreal, engrs.

BUILDINGS—SLC

▲ **Ont., Toronto**—SHOPPING CENTER—Cloverdale Shopping Centre Ltd., c/o M. W. Roth, archt., 55 Boulevard Dr., soon lets contract first stage of shopping center, incl. 3 buildings, 100x185 ft., 100x215 ft., 120x305 ft. each 1 story, for 35 stores. $2,000,000. Dr. E. G. Faludi, 614 Church St., planning consultant. CD 11/17/53.

HEAVY CONSTRUCTION—LB & CA

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
McNamara Constr. Co. Ltd., 42 Industrial St. Toronto, Ont., CA $813,107 Contr. 55-249, grading, culverts, gran. base along 8.22 mi. secondary road from Quirke Lake southerly, Blind River. Bids Nov. 16, awarded Nov. 21. CD 11/25, under LB.

Schwenger Constr. Ltd., 1255 Beach Rd., Box 446, Hamilton, Ont., CA $114,300 (6 bidders) filtration plant addns., BURLINGTON, ONT. Inter-Urban Area of Burlington-Nelson, 119 Brant St., Burlington, Ont. Bids Nov. 14, awarded Nov. 18. CD 10/27.

Swansea Constr. Co., 363 Rogers Rd., Toronto, Ont., LB $784,377 (9 bidders) 3,753 ft. concrete sewer 10-ft. inside diam. in North York, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Nov. 17. CD 10/17.

BUILDINGS—LB & CA

Clayden Co. Ltd., 290 Garry St., Winnipeg, Man., CA $439,883, Warrant Officers' and Sergeants' MESS and Sergeants' Quarters, Shilo Army Camp, SHILO, MAN. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Awarded Nov. 15.

▲ **Norcanda Constr. Co. Ltd.,** 36 Park Lawn Rd., Toronto, Ont., CA Total est. $9,000,000. main surface PLANT and MILL, BANCROFT, ONT. Bicroft Uranium Mines Ltd., Room 1405, 25 Adelaide St. W., Toronto, Ont. Awarded Nov. 18. CD 8/26.

▲ **A. Janin & Co., Ltd.,** 1460 Sherbrooke St. W., Montreal, Que., CA $1,250,000 (14 bidders) 2 story,

(Continued on page 133)

The world's most powerful tractor —with Torqmatic Drive

TWIN POWER TRAINS—made possible by Allison TORQMATIC DRIVES—make Euclid's new TC-12 the world's most powerful crawler sold today.

This twin-engine giant gets 388 horsepower from two GM Diesels—uses a pair of TORQMATIC Converter-Transmission teams to turn that power into more than 100,000 pounds drawbar pull and provide a smooth, steady flow of power for all job requirements.

But for all its power the TC-12 is easy to run for it has no master clutch.

The driver changes speeds with finger-tip hydraulic control at full power, instantly shifts from forward to reverse, spins his tractor in its own length, maneuvers with no more than a twist of the wrist.

And he gets more work done per day because with a top speed of 730 feet a minute the TC-12 doesn't crawl—it really moves fast.

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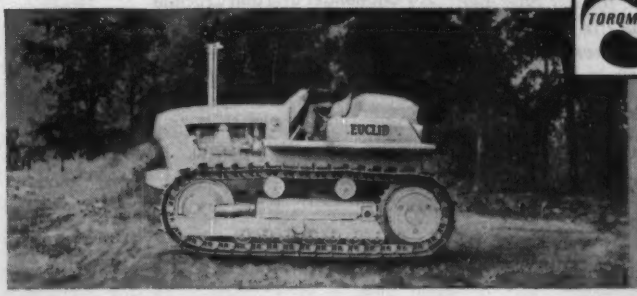

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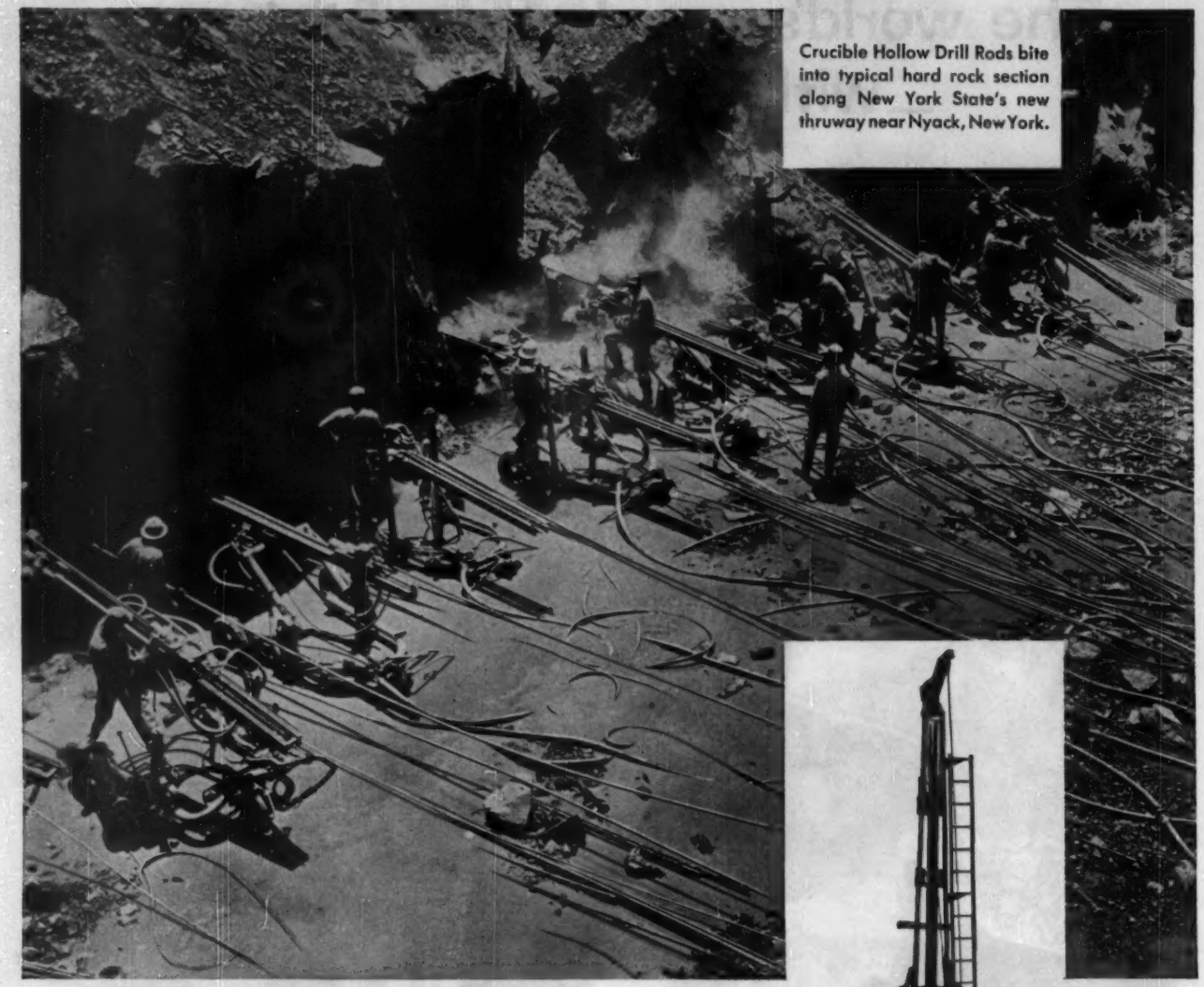
TORQMATIC DRIVES



Crucible Hollow Drill Rods bite into typical hard rock section along New York State's new thruway near Nyack, New York.

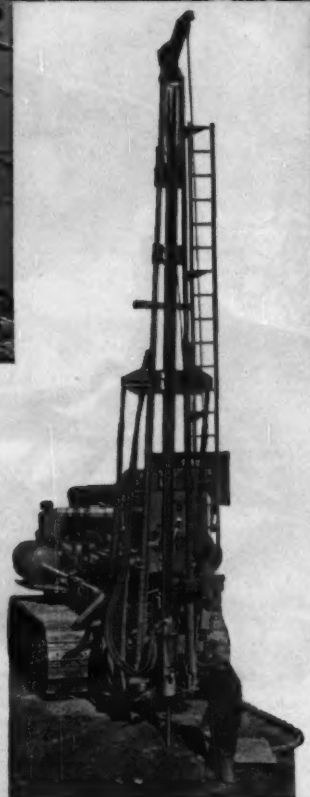
CRUCIBLE HOLLOW DRILL RODS

on the firing line —New York State Thruway

Chewing through hard rock sections of the New York Thruway, Crucible Hollow Drill Rods are helping to build this modern, high-speed highway across the state.

To make this motorist's dream come true meant careful planning by highway engineers—cooperation of dozens of contractors—top quality equipment. That's why large quantities of Crucible Hollow Drill Rods are being used. For experienced construction men *know* they can always depend upon Crucible Hollow Drill Rods for uniformly high performance in the field.

Crucible makes its hollow drill rods to *tool steel standards.* And that means *extra* quality . . . fewer broken rods and lost bits . . . *lowest cost per foot of hole drilled.* Make all *your* drilling jobs go smoothly—specify Crucible Hollow Drill Rods. *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 30, Pa.*



Joy Challenger drill and Crucible Hollow Drill Rod at work on New York State Thruway, Arden, N.Y.

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

(Continued from page 130)

part bsmnt., PHYSICAL and RECREATIONAL TRAINING BLDG., St. John's Military College, ST. JOHNS, QUE. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Bids Oct. 20, awarded Nov. 15. CD 9/28.

Walter G. Hunt Co., Ltd., 1405 Bishop St., Montreal, Que., CA $512,865, inert stores WAREHOUSE, ST. PAUL L' ERMITE, QUE. Defence Constr. (1951) Ltd. 56 Lyon St., Ottawa, Ont. Awarded Nov. 16.

Dickie Constr. Co. Ltd., 17 Yorkville Ave., Toronto, Ont., CA $100,000 (3 bidders), concrete work, excavating and backfilling only for PLANT addn., Windermere Ave., TORONTO, ONT. Steel Co. of Canada Ltd., Wilcox St., Hamilton, Ont. Awarded Nov. 18.

York Steel Constr. Ltd., 75 Ingram Dr., Toronto, Ont., Owner Builds. $350,000, 1 story, 75,000 sq. ft., steel, brick, concrete, steel fabricating SHOP, TORONTO, ONT.

▲ **Shields Constr. Co. Ltd.**, 2349 Yonge St., Toronto, Ont., Owner Builds, $1,000,000, 113-suite 10 story, penthouse, bsmnt., sub-bsmnt., rein.-con., steel, brick face L-shaped, 51x113 ft. and 51x111 ft., APARTMENT, TORONTO, ONT. Bregmann & Hamann, 7 Adelaide St. E., Toronto, Ont. archts.

Consumers Glass Co., 249 Kipling Ave. S., Toronto, Ont., Owner Builds. $550,000, 1 story, 87,120 sq. ft. steel frame, galvanized iron siding WAREHOUSE EXPANSION, TORONTO, ONT. CD 9/11/53.

International Constr., Inc., 1456 City Hall Ave., Montreal, Que., Owner Builds. $400,000. HOUSING PROGRAM, BEACONSFIELD, QUE.

▲ **McNamara Constr. Co., Ltd.**, 42 Industrial St., Toronto, Ont., CA $1,000,000. 45x75 ft. POWERHOUSE with 2,000 ft. canal, 400 ft. long concrete dam, 50 ft. high and grading for pipe line, CHICOUTIMI, QUE. Eastern Smelting & Refining Co. Ltd., 137 Wellington St. West Toronto, Ont. Montreal Eng. Co. Ltd., 244 St. James St. W., Montreal, Que. engrs. Awarded Nov. 17. CD 10/19.

▲ **International Constr. Co., Inc.**, 1356 City Hall Ave., Montreal, Que., Owner Builds, $28,500,000. 2,600 bungalow HOUSING DEVELOPMENT, suburban Point Claire, MONTREAL, QUE.

Magloire Cauchon Ltd., 311 de la Salle St., Quebec City, Que., CA $215,000. 2 story, 61x160 ft., concrete block refuse burning PLANT; 2 story 36x54 ft., concrete, structural steel frame SUB-STATION, QUEBEC CITY, QUE. Anglo-Canadian Pulp & Paper Mills Ltd., 10 Blvd. des Capucins, Quebec City, Que. Awarded Nov. 15.

ALASKA

HEAVY CONSTRUCTION—LB & CA

† **S. S. Mullen, Inc.**, 621 8 Ave. N., Seattle, Wash. CA $821,000, est. $746,075, water lines to serve deluge sprinklers in maintenance hangars, Ladd and Elmendorf Air Force Bases, Inv. 56-21, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Nov. 16. CD 11/25, under LB.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Eureka—Humboldt Co. Community Service Dist., 5055 Walnut Dr., Eureka, voted $130,000 bonds Nov. 8, water line near here. CD 9/28/54.

Colo., Grand Junction—Redlands Water & Sanitation Dist., Grand Junction, formation of water dist. $500,000.

Colo., Manitou Springs—Town, City Hall, water storage sys. imprvs. incl. raising face of existing reservoir on French Creek dam, 28 ft. $300,000. R. W. Beck & Assocs., Independence Bldg., Colorado Springs, consult. engrs.

▲ **Del., Newark**—City, City Hall, voted bonds water and sewerage imprv. program, $1,500,000. CD 6/23/52 and 10/8/52.

Mich., Detroit—Bd. Supervs. Wayne Co., City-County Bldg., Zone 26, 2½ mi. 24 in. water main, Inkster Rd. to tie with West Chicago Main to Ford Rd. $300,000. Albert T. Kunza, c/o owner, engr. CD 4/12.

Mich., St. Johns—City, water sys., distr. piping storage extens. $200,000.

Mo., St. Charles—City, Mayor, City Hall, voted $125,000 Nov. 15, pumping facilities expansion, etc., for WW sys. $340,000. CD 9/6.

N. M., Lovington—City, J. W. Harrison, mgr., water wells, $150,000; c.i. water mains, $175,000. CD 12/28/49.

▲ **Okla., Tulsa**—City, City Hall, voted bonds Nov. 15, sanitary sewer extens., $5,250,000; storm sewers, $1,300,000. W. R. Wooten, city engr. CD 11/2.

Que., Ste. Marie de Beauce—Village, J. Savoie, secy., reconstr. WW sys. $300,000. Piette, Audy & Lepinay, 1134 St. Louis Rd., Sillery, consult. engrs.

SEWERS, WASTE DISPOSAL

Calif., Los Angeles—Los Angeles Co., Hall of Records, sanitary sewers in Lee Ave., El Monte, $116,800. J. A. Lambie, c/o owner, engr.

Calif., Santa Ana—Santa Ana Gardens Sanitary Dist., Edinger Ave. and Fairview Rd., 21,500 ft. vitr. clay sanitary sewer lines, $100,000. Harrison & Woolley, 308 W. 5 St., consult. engrs.

▲ **Conn., Norwich**—City, P. Wks. Dpt., Brooks St., sewage treatment plant, Hollyhock Island. $1,600,000.

HOT PATCHES made FAST WITH WISCONSIN-POWERED Patchmobile

Here is a complete, mobile asphalt-repair unit, designed to produce hot asphalt materials equal to mixes of large stationary plants . . . made quickly, on the job-site. Its one-unit design means less equipment and greater operating economy in the maintenance of roads and streets, according to the builders, Wylie Mfg. Co., Inc., Oklahoma City, Okla.

A Wisconsin HEAVY-DUTY Air-Cooled Engine provides dependable, all-weather power. Features include tapered roller bearings at BOTH ends of the crankshaft; pump-circulated lubrication with individual oil stream to connecting rod (other parts lubricated by oil spray); high tension rotary type OUTSIDE Magneto, equipped with Impulse Coupling for quick starts in any weather, plus efficient AIR-COOLING from sub-zero to 140° F.

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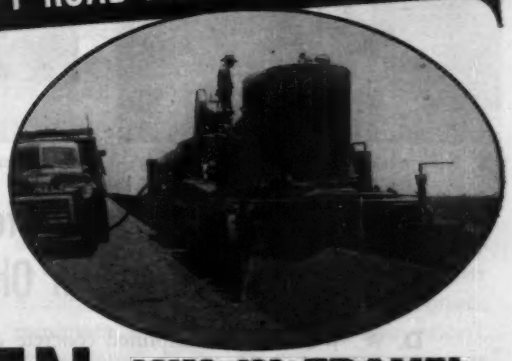

MADSEN Equipment that Serves

MADSEN MIX-IN-TRAVEL ROAD PUG

You can make substantial profits on those secondary road and airport jobs with the MADSEN Road Pug. This outstanding unit picks up the material, dry-mixes the aggregate, injects bituminous binder (or water for cement stabilization), mixes the material and discharges a uniform mix . . . in a **single-pass operation**. Oil volume is synchronized to road speed of unit and is controlled by the MADSEN patented volume metering pump. Loading delays are eliminated because road oil is replenished in transit.

MADSEN ADVANTAGES
- EASY HANDLING . . . travels and maneuvers with the ease of a crawler-type tractor.
- HIGH-SPEED MIXING . . . travels at a speed ranging from 5 to 40 feet per minute.
- LARGE CAPACITY . . . mixes from 200 to 550 tons of road mix per hour.

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BLH Construction Equipment Division

Bids early 1956. Kels & Hcheyd, 257 Broadway, Troy, N. Y., consult. engrs.

▲ **Ill., Glen Ellyn**—Village, Village Hall, sewage treatment plant addns., sanitary and storm sewers, $1,700,000. Walter E. Deuschler & Co., 63 S. La Salle St., Aurora, consult. engrs.

Ind., Carthage Container Corp. of America, 38 S. Dearborn St., Chicago 3, Ill., sewers, sewage treatment plant at plant to avoid polluting Blue River, $130,000.

Mich., Redford—Redford Twp., Margaret Peoples, city clk., sewerage sys., Joy, Virgil, West Chicago and Inkster Rds. $110,000, Edwin M. Orr, 22148 Michigan Ave., Dearborn, consult. engr.

Mich., St. Johns—City, sewerage expansion, exten. sewer mains and new sewage treatment plant, North End, $350,000.

Minn., Elbow Lake—Village, storm sewer, sewage disposal plant, water filtration plant, $192,000, H. Hall, Alexandria, consult. engr.

▲ **Minn., Golden Valley (P. O. Minneapolis)**—Village, K. Rahn, clk., sanitary trunk sewer to serve part of village generally south of Olson Hy. and also industrial district, $1,053,743, G. M. Orr Eng. Co., 1004 Marquette Ave., Minneapolis, consult. engr. CD 9/1.

Minn., Lester Prairie—Village, A. B. Kothe, clk., sanitary sewers, sewage treatment plant, $175,000, Lindsey Eng. Co., 9 Tonka Terrace, Rte. 2, Excelsior, consult. engrs.

▲ **Minn., Roseville (P. O. St. Paul)**—Village, B. H. Hammersten, clk., sanitary sewerage sys. in an area bounded by Hy. 36, Cleveland Ave., St. Paul, city limits and Rice St. $2,200,000, Banister Eng. Co., 1549 University Ave., St. Paul, consult. engrs. CD 2/25.

Mo., St. Joseph—City, City Hall, voted $500,000 bonds Nov. 15, repairing sewers. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 1/10/45.

Mo., Trenton—City, voted $550,000 bonds sewage disposal plant, E. T. Archer & Co., Railway Exchange Bldg., Kansas City, Mo., consult. engrs. CD 9/28.

N. J., Trenton—Ewing Lawrence Sewerage Auth., 146 W. State St., pumping station, force mains and sewers, $300,000. Buck Seifert & Jost, 112 E. 19 St., New York, N. Y., consult. engrs.

▲ **O., Struthers**—City, Frank Unick, service dir., intercepting sewerage sys. and sewage treatment plant, $1,336,000. Theodore Dastoli, city engr. CD 1/6/47.

▲ **Okla., Tulsa**—City, City Hall, voted bonds Nov. 15, WW extens. $8,000,000. W. R. Wooten, city engr. CD 11/1.

Tex., Bishop—Harold T. Bailey, Contractor & Assocs., 2728 Agnes St., Corpus Christi, storm sewers, $75,000; sanitary sewers, $75,000, "Golden Acres" Subdivision.

Tex., Dallas—George F. Mixon & W. R. Troth, 9007 Devonshire Dr., sanitary sewers, $80,000; storm sewers, $77,500, off Alpha, Colt and Beltline Rds.

Tex., Houston—Bailey-Evans Realty Co., 9501 Chocolate B Bayou, storm sewers, $75,000, sanitary sewers, $79,000, off southeast sect. city limits.

Tex., Houston—M. Louis Bernell, 9501 Chocolate Bayou, Houston, storm sewers, $75,000; sanitary sewers $75,000, off southeastern section of city limits.

Tex., Houston—Builtrite Homes, 4137 Reed Rd., storm sewers, $77,500; sanitary sewers, $77,000, southeast fringe city limits.

Tex., Houston—The Martin Building Co., 9501 Chocolate Bayou, Houston, storm sewers, $75,000; sanitary sewers, $77,500, off southeastern section of city limits.

Tex., Lubbock—Mrs. C. D. Elliston, 2115 E. Broadway, storm sewers, $77,500; sanitary sewers, $80,000.

Tex., Houston—E. G. McMillan, c/o Briargrove, Houston, sanitary-storm sewers, off Westheimer, at Rogers Rd. $105,500.

Tex., Pasadena—Parkwood Subdivision c/o C. O. Beeler, c/o Beeler Lumber Co., 4715 Calhoun St., Houston, storm sewers, $76,500; sanitary sewers, $77,750, addni. Parkwood development.

Tex., San Antonio—Green Meadow Development Co., c/o Wm. Oche & Assocs., 833 Bandera Rd., storm sewers, $75,000; sanitary sewers, $77,000, in Green Meadows Estates Subdivision.

Wash., Longview—Beacon Hill Sewer Dist., Longview, bond election Dec. 16, sewerage sys., Beacon-Hill-Columbia Heights area north of here, $400,000. L. C. Gibbs, Chehalis, consult. engr.

Ont., Coniston—Town, Town Hall, sewerage sys., incl. 40,000 ft. gravity mains, sewage disposal plant, $305,285. E. M. Powell & Assocs., 424 Lloyd St., Sudbury, consult. engrs.

BRIDGES

Missouri—State Hy. Comn., Jefferson City,
Richmond Heights—3-lane overpass across tracks of St. Louis Terminal Railroad on U. S. 40, near city limits. $150,000.

Mo., St. Louis—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market Sts., Zone 3, bridge on Spring Ave. between Gratiot St. and Clark Ave. across railroad tracks in Mill Creek Valley. $880,000. F. R. Martin, 804 Pine St., Zone 1, consult. engr. CD 6/27.

▲ **O., Dayton**—Comrs. Montgomery Co., Court House, defeated taxy levy Nov. 8. two new bridges, replace and renovate 17 others. $1,000,000. CD 8/10.

▲ **Wash., Seattle**—City, County-City Bldg., Seattle, Zone 4, Ballard Bridge approaches, wid'n 15 Ave. W. $2,330,000. W. E. Parker, city engr.

Wash., Yakima—City, City Hall, former bond election ruled invalid, Lenox Ave. railroad overpass $400,000. H. Hadley, Seaboard Bldg., Seattle, Zone 1, consult. engr. A. B. Collins, city engr. CD 9/17/52.

STREETS AND ROADS

Calif., San Diego—City, Civic Center, paving Sterling Court, $111,913. Alden K. Fogg, c/o owner, engr. CD 12/6/44.

Minn., Minneapolis—City, L. Johnson, clk., paving Portland Ave. between 3 and 31 St. $407,023. H. Erickson, city engr. G. Bodien, asst. city engr. To go ahead 1956.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
Westchester Co.—2.2 mi. express type hy. from W. 259 St. and Broadway in Bronx to Nepperhan Ave., Yonkers to be called Park Hill Arterial, $4,445,000. To go ahead in 1956, pending financing.

O., Cleveland—Bd. Comrs. Cuyahoga Co., Court House, Zone 13, exten. and establishment of Snow Rd. from State to Rockside Rds., Parma and Seven Hills. $300,000. Albert S. Porter, Standard Bldg., co. engr. CD 11/13/51.

O., Coldwater—Village, defeated bonds Nov. 8, street imprvs. $100,000. CD 8/1.

Okla., Oklahoma City—City, City Hall, c. conc. paving 87, 88, 89, 90 from Broadway to Walker. $271,000, W. W. Baker, city engr. CD 7/27.

▲ **Okla., Tulsa**—City, City Hall, defeated bonds Nov. 15, Southeast Freeway, $3,100,000. street imprvs., $1,600,000; West Tulsa freeway, $750,000. W. R. Wooten, city engr. CD 11/1.

▲ **Wash., Ellensburg**—City, City Hall, city-wide street repairs, $2,000,000. Work to start next year.

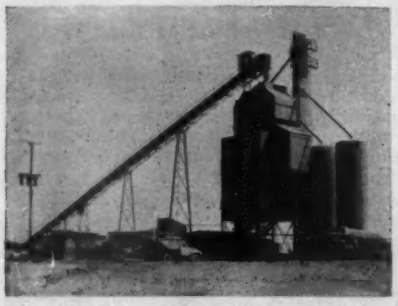
Wash., Seattle—City, County-City Bldg., Seattle, Zone 4, traffic interchange at 15 Ave. W. and W. Garfield St., $285,000.

Ont., Walkerton—Bruce County Council, Walkerton, paving 1 mi. north and south of Tara and 3 mi. north and south of Paisley. $200,000. E. R. Yundt, County Bldgs., co. engr.

EARTHWORK, WATERWAYS

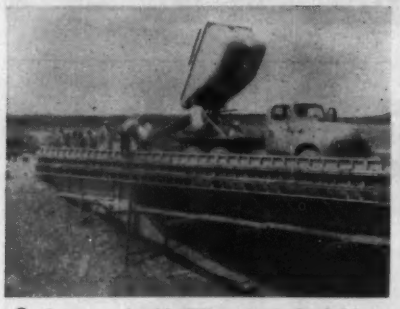
▲† **Missouri-Arkansas**—U. S. Eng., Box 867, Little Rock, Ark., generator leads, over $100,000; station service switchgear leads, over $100,000; bids early in January; switchboard for power plant, over $100,000, bids early in March; main governors for power plant, over $100,000, bids latter part of March; relocation of State Hy. 13 at White River, bridge constr. in Stone Co., over $1,000,000, bids latter part of April; power house and equipment, over $5,000,000. Bids latter part of May, all above work for Table Rock Reservoir, White River. CD 7/16/54.

(Continued on page 136)



1. Central plant produces 3 types of mixes

2. Dumpcretes haul 4 yds. to paving site



3. Same truck with different mix for bridge

4. Access road widening gets this 4 yd. load

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OZALID

(Continued from page 134)

N. M., Lovington—City, J. W. Harrison, mgr., flood control. $200,000.

▲ Texas—Angelina-Nacogdoches Counties Water Control & Imprvt. Dist. No. 1, Lufkin, lake and dam on Stricker Creek, near Henderson, Rusk Co., to sell water to Texas Power & Light Co. and to cities of Nacogdoches, Lufkin and Henderson and to industries. $2,000,000.

▲ Tex., Harlingen—Cameron County Water Control & Imprvt. Dist. No. 1, Harlingen, renovation program incl. modernizing canal banks, pumping plants, raising irrigation reservoir walls, rebuilding structures, renovating, enlarging lateral lines, etc. $5,052,000.

Tex., Richmond—Fort Bend County Drainage & Soil Conservation Dist., Richmond, Turkey Creek Watershed Proj. $453,360. CD 5/11/50.

▲ Washington—Grant County Public Utility District No. 2, P.O. Box 878, Ephrata, Wanapum Dam on Columbia River (Priest Rapids Project) $188,000,000. Harza Eng. Co., 400 W. Madison St., Chicago, Ill., consult. engr. CD 11/4/54.

▲ Quebec—Quebec Hydro-Electric Power Comn., 107 Craig St. W., Montreal, power development on Ottawa River between Point Fortune and Carillon. Over $30,000,000. Shawinigan Eng. Co. Ltd., 600 Dorchester St. W., Montreal, consult. engrs. Expected to start next spring.

AIRPORTS

▲† Ark., Jacksonville—HOSPITAL—U. S. Eng., P. O. Box 867, Little Rock, plans by Stone & Pitts and Carter & Burgess, consult. engrs.-archts., 1872 Calder St., Beaumont, Tex., 100-200-bed hospital, Little Rock Air Force Base. $1,750,000.

▲† Mich., Selfridge Air Force Base—HOSPITAL, etc.—U. S. Eng., 600 East Jefferson Ave., Detroit, hospital, $3,200,000; modern lighting sys. for runways, constr. addnl. runways, new aircraft control tower, telephone exchange bldg., $2,500,000; three 3 story units cement block dormitories, Selfridge Air Force Base, $965,000. CD 2/9/53.

▲ Tenn., Nashville—RUNWAYS EXPANSIONS, etc—City, City Hall, runways expansion and other Imprvs. Incl. new administration and other buildings, Nashville Municipal Airport, Berry Field, $3,000,000.

PUBLIC BUILDINGS

Ala., Troy—COLLEGE AUDITORIUM, etc.—Troy State Teachers College, Troy, college auditorium $445,000; married students dormitory and apartments, $375,000.

▲ Calif., Anaheim—SCHOOLS—Anaheim City School Dist., Anaheim, $3,500,000 bond election Jan. 31, schools. CD 7/25/54.

▲ Calif., Antioch—SCHOOLS—Antioch-Live Oak School Dist., c/o Supt., ABC Bldg., Antioch, bond election Feb. 7, Junior High School, addns. to schools. $5,000,000. John Lyon Reid & Partners, 1069 Market St., San Francisco, archts.

Calif., Boonville—HIGH SCHOOL—Anderson Valley Unified School Dist., Boonville, $800,000 bond election Feb. 10, high school.

▲ Calif., El Sobrante—SCHOOL—Sheldon Elementary School Dist., 1021 May Rd., voted $3,600 000 bonds Nov. 15, school addns. CD 10/26.

Calif., Escondido—SCHOOLS—Escondido Union Elementary School Dist., Escondido, $495,000 bond election Feb. 7, schools. CD 11/2.

Calif., Hamilton—SCHOOL—San Jose Elementary School Dist., Hamilton, voted bonds, school addns., at Lynwood Meadow Park and Loma Verde and new school. $400,000. CD 10/27.

▲ Calif., San Jose—COLLEGE—State Div. Architecture, P. Wks. Bldg., Sacramento, San Jose State College addn., incl. new buildings, cafeteria, art bldg., classrooms, etc. $5,000,000.

Colo., Loveland—SCHOOL—Bd. Educ., School Dist. No. 2, Loveland, bond election Dec. 15, Junior High School $650,000. Walter H. Simon, 1922 E. 18 Ave., Denver, consult. engr.

▲ Colo., Sterling—SCHOOL—School Dist. 12, Logan Co. Sterling, voted bonds Nov. 15, 2 story, brick high school. $1,400,000. Atchison & Kloverstrom, 257 Josephine St., Denver, consult. engrs.-archts. CD 11/10.

Conn., Cornwall—SCHOOL—Town School Bldg. Comn., Cornwall, plans by Ebbetts, Frid & Prentice, 862 Asylum Ave., Hartford, Consolidated School addn. $360,000.

Conn., Meriden—SCHOOLS—City, Bd. Educ., Meriden, plans by Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, Lincoln Junior High School addns., alterations, $350,000; plans by Carl J. Malmfeldt & Assocs., 36 Pearl St., Hartford, Jefferson Junior High School, $360,000.

Conn., Suffield—SCHOOL—Town, W. W. Prout, chn. School Comn., Suffield, plans by Kieth Sellers Heine, 71 Oxford St., Hartford, high school addn. $350,000.

† Ill., Belleville—TRAINING CENTER—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54, U. S. Army Reserve Training Center, 5-acre site at Otto and Sahlender Sts. $131,750.

▲ Ill., Chicago Heights—SCHOOL—School District 206, 10 Ave., Chicago Heights, plans by Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Bloom Twp. High School addns. $3,700,000. CD 4/15/54.

Ill., Joliet—SCHOOL—School Dist. 86, 153 S. Ottowa St., Raynor Park School, Ingles and Oregon Sts. $350,000.

Ill., Villa Park—SCHOOLS—School Dist. 45, Michigan and Jackson Sts., plans by Harold W. Tanner, 20 E. St. Charles St., Junior High School addn., Washington School addn. and Westmore School addn. $500,000.

Ind., South Bend—HIGH SCHOOL—Green Twp. School Bldg. Corp., Oak Rd., plans by Ray Warden, 312 W. Colfax St., 1 story high school $350,000.

▲ Iowa, Clinton—SCHOOLS—Bd. Educ., School Dist., Pauline J. Nelson, secy., $1,800,000 bond election Mar. 12, schools and school addns. McCann, Prout & Assocs., 410 Howes Bldg., archts.

Iowa, Cresco—COURT HOUSE—Howard Co., Cresco, defeated $400,000 bonds, court house. Hansen & Wagoner, Mason City, archts. CD 11/11.

Iowa, Independence—SCHOOL—Bd. Educ., J. G. Weepie, secy., plans by David B. Toenjes, 217 W. 4 St., Waterloo, Jefferson School addn. $350,000.

Iowa, Webster City—SCHOOLS—Community School Dist. Bd. Educ., Webster City, voted $750,000 bonds. schools and school addns.

Mass., Andover—SCHOOL—Town, Andover, plans by Perley F. Gilbert & Assoc., Inc., 8 Merrimack St., Lowell, elementary school, Ballard Vale Area, $350,000.

Mass., Groton—SCHOOL—Town School Dpt., Groton, plans by Gregory Cooper, Park Square Bldg., Boston, high school addn. $400,000. Hayden, Harding & Buchanan, Park Sq. Bldg., Boston, consult. engrs.

Mich., Albion—SCHOOL—City, Bd. Educ., Albion, plans by Warren S. Holmes Co., 2200 Michigan National Tower, Lansing, elementary school. $600,000.

Minn., Brandon—SCHOOL—Bd. Educ., C. Augdale, clk., voted $340,000 bonds Nov. 14, grade school. $344,000. W. J. Seifert Assocs., Fargo, N. D., archts. CD 10/27.

Minn., Lamberton—SCHOOL—Bd. Educ., A. E. Anderson, clk., plans by E. H. Schmidt Co., Mankato, school. $550,000. (Correction—architect). CD 11/3.

▲ Minn., Minneapolis—SCHOOL—Bd. Educ., H. Held, architectural engr., 807 Broadway N.E., plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, second unit of Northeast Junior High School between 29 and 30 Aves. and between Hayes and Marshall Sts. N.E. $1,000,000. CD 5/11.

Minn., Mound—SCHOOL—Bd Educ., V. E. Clausen, clk., defeated $560,000 bonds Nov. 15, school. Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, archts. CD 10/18.

▲ Mo., St. Louis—AUDITORIUM-GYNASIUM—Bd. Educ., V. Harry Rhodes, comr., School Bldgs., 911 Locust St., Zone 1, plans by F. Ray Leimkuehler, superv. archt., c/o owner, combined auditorium-gynasium and field house for new O'Fallon Technical High School on Northrup Ave. West of Kingshighway. $1,459,000. To go ahead in 1956. CD 6/7.

Mo., St. Louis—SCHOOL—Bd. Educ., V. Harry Rhodes, comn. School bldgs., 911 Locust St., Zone 1, plans by F. Ray Leimkuehler, superv. archt., c/o owner, industrial arts and home economics addn. to Southwest High School Kingshighway at Arsenal St., $352,000. CD 3/29/55.

▲ Mo., St. Louis — SCHOOL — Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., Zone 1, plans by F. Ray Leimkuehler, superv. archt., c/o owner, elementary school to serve M-1-6 public housing area, vicinity of 22 and Carr Sts. $1,275,000. To go ahead in 1956. CD 11/16/54.

▲ Mo., St. Louis—SCHOOL—Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., Zone 1, plans by F. Ray Leimkuehler, superv. archt., c/o owner, elementary school to serve M-1-7 public housing area, vicinity 14 St. and Park Ave., $1,275,000. To go ahead in 1956. CD 6/11/51.

Neb., Holdrege—HIGH SCHOOL—Bd. Educ., Holdrege, $800,000 bond election Dec. 13, new high school and conversion of present Junior High School to an elementary school. CD 11/11.

Neb., Minden—SCHOOL—Bd. Educ., voted $600,000 bonds Nov. 15, Junior High and Elementary School. CD 12/7/54.

Neb., York—SCHOOL—Bd. Educ., $355,000 bond election Dec. 15, school. J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt.

N. J., Westmont—SCHOOL—Haddon Twp. Bd. Educ., Westmont, plans by Howell Lewis Shay & Assocs., Packard Bldg., Phila., Pa., elementary school, Crystal Lake Ave. $450,000.

▲ N. Y., Syracuse—OFFICE—City, Sergei N. Grimm, exec. secy. City Planning Comn., City Hall, 12 story municipal office. $2,300,000.

N. D., Mandan—ARMORY—City and North Dakota National Guard, Bismarck, armory. $100,000.

N. D., Williston—HIGH SCHOOL—Bd Educ., Williston, voted $850,000 bonds Nov. 8, high school. Wells & Denbrook, 425 Kittson Ave., Grand Forks, archts. CD 10/25.

O., Akron—SCHOOL—Bd. Educ., Martin Essex, supt., 70 N. Broadway, plans by Edwin F. Bliss, c/o owner, schools archt., elementary school, northwest side of city, $500,000; elementary school, southeast side of city, $400,000. CD 7/25/51.

▲ O., Bedford—HIGH SCHOOL—Bd. Educ., Dale Heskett, supt., 91 Tarbell St., plans by Chas. Bacon Rowley & Assoc., Keith Bldg., Cleveland, Zone 15, Bedford Senior High School addn. $3,000,000-$3,500,000. CD 11/5/54.

O., Centerville—SCHOOL—Bd. Educ. Washington Twp. School Dist., $480,000 bond election Dec. 20, school. CD 11/13/53.

▲ O., West Carrollton—SCHOOLS—Bd. Educ., voted $1,100,000 bonds Nov. 8, schools. CD 10/11.

▲ Okla., Tulsa—AUDITORIUM—city, City Hall, defeated bonds Nov. 15, municipal auditorium. $3,100,000. W. R. Wooten, city engr. CD 11/1.

Okla., Tulsa—FIRE STATION—City, City Hall, voted bonds Nov. 15, fire station. $550,000. W. R. Wooten, city engr. CD 11/1.

▲ Pa., Embreeville—HOSPITAL—General State Auth., 18 and Herr Sts., Harrisburg, senile patients bldg., $2,080,000; disturbed patients bldg., $1,544,000; acute patients bldg., $1,725,000, Embreeville State Hospital, A. F. Jones, ch. engr.

Pa., Lock Haven—DORMITORY—General State Auth., 18 and Herr Sts., Harrisburg, dormitory for Lock Haven State Teachers' College. $800,000.

Pa., Willow Grove — SCHOOL — Upper Moreland Twp. School Dist., Willow Grove, plans by Heacock & Platt, 1505 Race St., Phila., Woodland Ave. Elementary School. $350,000, Allabach & Rennis, 16 S. Broad St., Phila., engrs. CD 11/8/54.

R. I., Kingston—HOUSING—State R. I. & Providence Plantations, Dpt. Purchase, State House, Providence, plans by John F. Hogan, 385 Westminster St., Providence, housing for faculty members and married students, University of Rhode Island. $800,000.

▲ Tex., Aldine—SCHOOLS—Aldine Independent School Dist., Aldine, voted bonds Nov. 19, Carroll Elementary School unit, $1,000,000; Mendel Elementary School unit, $1,250,000; Carver Elementary School unit, $750,000; George Washington Carver Senior High School imprvs., addns., $500,000.

Tex., Austin—LAUNDRY and ADMINISTRATION—Board for Texas State Hospitals & Special Schools, 4405 Lamar Blvd., plans by Niggli & Gustafson, 1313-A S. Congress St., laundry plant and administration bldg., Austin State School Farm Colony, $225,000. CD 9/28.

Tex., Mexia—WARD UNIT, etc.—Board for Texas State Hospitals & Special Schools, Austin, plans by Wilson, Patterson & Assocs., Majestic Bldg., Ft. Worth, 60-75 bed ward unit, $340,000; plans by Thomas, Jameson & Merrill, 820 N. Harwood St., Dallas, 200-bed ward unit, Mexia State School and Home, $560,000. CD 9/28.

Tex., Odessa—SCHOOLS—Odessa Independent School Dist., Odessa, voted bonds Nov. 12, lower grades classrooms, $350,000; upper grades classrooms, $450,000. CD 1/5.

† Tex., Port Arthur—TRAINING CENTER—U. S. Eng., Box 1229, Galveston, 200-man Army Reserve Training Center, $527,000.

▲ Tex., Wichita Falls—MEDICAL TREATMENT UNIT—Board for Texas State Hospitals & Special Schools, Austin, plans by Preston M. Geren, 1601 Ft. Worth Natl. Bank Bldg., Ft. Worth, 175-bed medical and treatment unit, Wichita Falls State Hospital, $1,000,000. CD 9/28.

▲ Wash., Pullman—HOUSING UNITS—Washington State College, Pullman, plans by Walker, McGoff & Trodgen, Great N. W. Life Insurance Bldg., Spokane, 100 housing units for married students. $1,000,000. CD 11/17.

▲ Wyo., Casper—SCHOOL ADDNS.—Casper-Midwest Bd. Educ., 930 S. Elm St., new Junior High addn. to Midwest Grade School; remodeling Pineview and Westwood Grade Schools, remodeling high school annex, $2,000,000.

Ont., Sault Ste. Marie—HIGH SCHOOL—Sault Ste. Marie Bd. Educ., 644 Albert St. E., plans by Joohn B. Parkin Assocs, 1500 Don Mills Rd., Postal Station "M", Toronto, and 100 Bruce St., Sault Ste. Marie, 2 story, 200x200 ft. steel high school, near Wellington and Hugil Sts. $850,000.

▲ Sask., North Battleford—POST OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by E. A. Gardner, c/o owner, ch. archt., post office, $1,000,000. Construction may start next year.

COMMERCIAL BUILDINGS

Ala., Birmingham—HOME FOR THE AGED—North Alabama Methodist Conference, 1801 6 Ave. N., home for the aged, $300,000.

▲ Calif., Concord — SHOPPING CENTER — Owner, c/o J. Y. Long & Co., designer, 132 9 St., Oakland, shopping center, incl. several shops and 1,000 car parking field, opposite Clayton Valley School on Clayton Valley Rd. $3,000,000.

▲ Calif., Menlo Park—OFFICE, LABORATORY—Stanford Research Institute, Stanford Village, Menlo Park, plans by Stanton & Stockwell, 627 S. Carondelet St., Los Angeles, 120,000 sq. ft. office and laboratory. $1,500,000.

▲ Calif., Merced — SHOPPING CENTER — Owner, c/o W. T. Wong, archt., 2644 Pacific Ave., Stockton, 135,000 sq. ft. 25-store shopping center. $1,000,000.

Calif., Palo Alto—MUSIC AUDITORIUM—Stanford Bd. Trustees, Stamford Campus, Palo Alto, plans by Milton T. Pflueger, 580 Market St., San Francisco, and Spencer & Ambrose, 251 Kearney St. San Francisco, music auditorium, $400,000. CD 7/14.

Conn., New Haven—SCHOOL—St. Bernadette's Roman Catholic Church, Rev. Charles L. Hewitt, pastor, 385 Townsend Ave., plans by Palah & Sullivan, 1397 Chapel St., school, Townsend Ave. $345,000.

Del., Hockessin—SCHOOL, etc.—St. John the Beloved Roman Catholic Church, Hockessin, school, chapel and church, convent and rectory, $500,000.

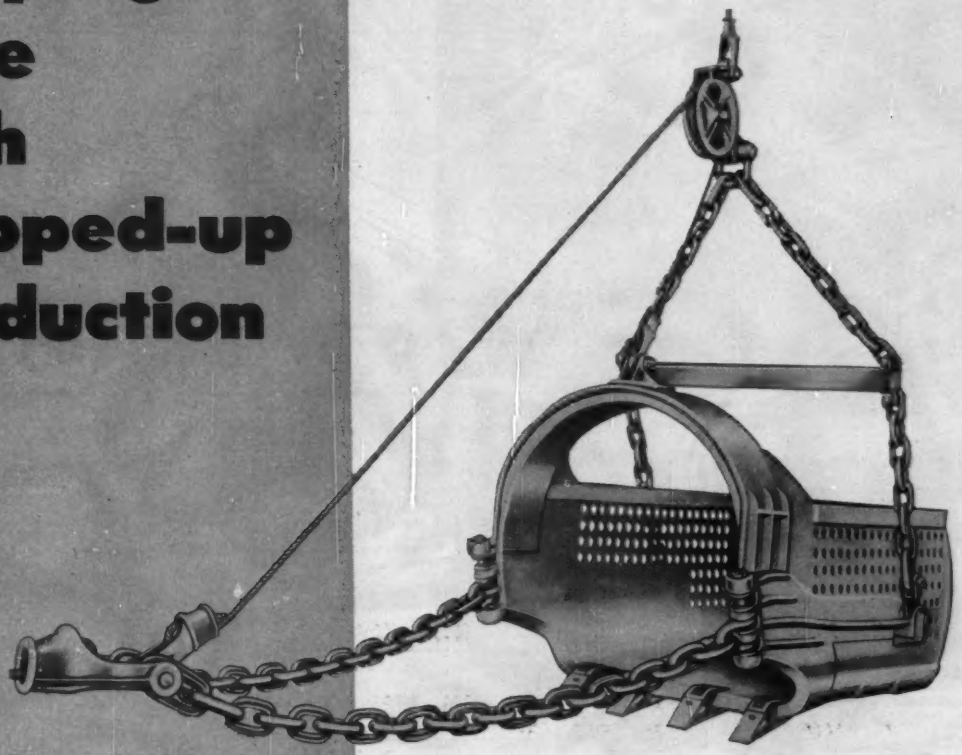
▲ D. C. Wash.—HEADQUARTERS—Equitable Life Insurance Co., 816 14 St., N. W., plans by Leon Chatelain, Jr., 1727 K St. N.W., headquarters bldg., just north of McLean Gardens, Wiscensin Ave. N. W. $2,000,000.

Fla., Pensacola—HIGH SCHOOL—Mobile-Birmingham Catholic Diocese, 64 N. Catherine St., Mobile, Ala., high school, $400,000.

▲ Ill., Chicago—HOTEL, etc.—Center Hotel Corp., 1824 W. Harrison St., plans by Bertram A. Weber,

Continued on page 139)

keeping pace with stepped-up production



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(Continued from page 136)

221 N. La Salle St., Zone 1, 12 story hotel and store, Congress, Ogden and Harrison Sts., $5,000,000.

Ill., Glen Ellyn—SANCTUARY, etc.—First Methodist Church, 545 Hillside Ave., plans by Harold E. Wagoner, 117 17 St., Phila., Pa., sanctuary and educational facility, $350,000.

▲ **Ind., Angola**—SHOPPING CENTER—A. C. Pantius, Jr. and Assocs., 428 Utility Bldg., Fort Wayne, plans by Max Pohlmeyer & Assoc., 262 Central Bldg., Fort Wayne, 32-store L-shaped Harcourt Plaza Shopping Center, 128-acre tract on U. S. 27 just north of city limits. $1,000,000. To go ahead in spring 1956.

▲ **Ind., Indiana Harbor**—APARTMENT—Purdue-Calumet Development Foundation, Thomas S. Bunsa, 3701 Main St., East Chicago, plans by Beine, Hall & Curran, 607 Broadway, Gary, 100-unit apartment and 1,000 homes, $1,000,000 or more.

Iowa, Cedar Rapids—OFFICE—Perpetual Savings & Loan Assn., 319 3 St. S.E., plans by H. R. Green Co., engr.-archt., 417 1 Ave. S. E., office. $350,000.

Iowa, Davenport—Y.M.C.A. ADDN.—Young Men's Christian Assn., 402 Harrison St., Y.M.C.A. bldg. addn. $850,000.

Iowa, Des Moines—SCHOOL—Dowling High School, 1000 College Ave., plans by G. I. Griffith, 607 Fleming Bldg., school addn. $400,000.

▲ **Kan., Halstead**—HOSPITAL—Sisters of St. Joseph Hospital, Halstead, hospital addn. $1,250,000.

▲ **Md., Glen Burnie**—HOMES—Richmont Homes, Inc., Leo Gottfried, 4001 Chatham Rd., Baltimore, plans by Ben Brotman, 2118 Maryland Ave., Baltimore, Zone 18, 1,200 homes and 25 store shopping center Ritchie Hy. and Mountain Rd. $7,500,000.

Mass., Acton—RESIDENTIAL DEVELOPMENT— Revolutionary Ridge Co., Musketquard Rd., Concord, residential development, National Homes, $360,000.

Mass., Lynn—CHURCH—First Church of Christ Scientist, 10 Chestnut St., plans by Saltonstall, Morton & Morton, 53 State St., Boston, church, $350,000.

Mass., Medford—PARISH HALL—St. Joseph's Parish, Rt. Rev. Msgr. John B. Condon, pastor, 114 High St., plans by Richard Shaw, 25 Huntington Ave., Boston, parish hall, High St. $400,000.

Mass., Springfield—SHOPPING PLAZA—Mel Realty Co., c/o A. C. White Jr., 496 Bridge St., plans by Munson & Mallis, Inc., 121 Chestnut St., 30,000 sq. ft. shopping plaza, incl. 10 stores Parker St. $450,000.

▲ **Mich., Jackson**—HOSPITAL WING—Mercy Hospital Bd. Trustees, Jackson, wing hospital addn. $1,250,000.

Minn., Ely—CHURCH, etc.—St. Anthony de Pavada Parish, Ely, plans by R. V. McCann & Assoc., 22 W. 24 St., Minneapolis, church and rectory, $475,000. Constr. in Spring.

Minn., Northfield—DORMITORY—Carleton College, L. M. Gould, pres., plans by Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, women's dormitory. $500,000.

Minn., St. Paul—DORMITORY—Hamline University, P. H. Giddens, pres., 1536 Hewitt Ave., plans by Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, women's dormitory, $670,000.

Mo., Shrewsbury (St. Louis 17 P.O.)—SCHOOL—St. Louis Archdiocese of Catholic Church, Most Rev. Joseph E. Ritter, archbishop, 3810 Lindell Blvd., St. Louis, Zone 8, 2 story, brick, steel, concrete, St. Louis Preparatory High School on grounds of St. Louis Preparatory Seminary, 5200 Glennon Dr.

Nev., Reno.—MOTOR LODGE—Owner, c/o Russell, Mills & Assoc., 309 N. Virginia St., constr. Town House Motor Lodge, incl. 80 units, swimming pool convertible into ice rink, playground, $850,000. CD 8/12.

N. J., Atlantic City—MOTEL—John Ginnetti, 3212 Pacific Ave., motel, Sovereign Ave. and Boardwalk, $344,000.

N. J., Margate—APARTMENT, etc.—L. Markowitz c/o 6812 Ventnor Ave., Ventnor, apartment and store development, Ventnor Ave. $344,000.

▲ **N. J., New Brunswick**—HOSPITAL—St. Peter's General Hospital, Easton Ave., plans by Epple & Seaman, 901 Broad St., Newark, hospital addn. $3,500,000.

N. Y., Brooklyn—APARTMENT—Remsen Harbor Corp., 188 Montague St., Zone 2, plans by A. Rollin Caughey, 165 E. 72 St., New York, Zone 21, 10 story apartment, 66-66 Remsen St. $847,000.

N. Y., Endicott—EDUCATIONAL—International Business Machines Corp., 590 Madison Ave., New York, Zone 22, plans by Moore & Hutchins, 215 E. 37 St., New York, educational bldg. with laboratories. $850,000.

▲ **N. Y., New York**—APARTMENT—Fort Tryon Terrace, Inc., 391 E. 149 St., plans by Greenberg & Ames, 303 Fourth Ave., Zone 10, apartment, 66-96 Overlook Terrace. $1,400,000.

▲ **N. Y., New York**—APARTMENT—Jacob Associates, Inc., 151 W. 40 St., Zone 36, plans by Richard Roth, 575 Madison Ave., Zone 22, 14 story apartment, 301-5 E. 70 St. $2,500,000. To go ahead in 1956.

▲ **N. Y., New York**—OFFICE—John Platt Realty Corp., 161 William St., plans by Sylvan Bien, 33 W. 46 St., Zone 19, 31 story office, 120-26 William St., and 79-81 John St. $15,000,000. To go ahead in 1956.

O., Cincinnati—OFFICE and RESEARCH—Good-Will Industries, 518 E. Pearl St., plans by Sullivan-Isaacs-Sullivan & Assocs., archts.-consult. engrs., 1800 Reading Rd., 200x500 ft. office and research bldg., east side of Plainfield Pike. $700,000. Leonard Garver, c/o owner, co. engr. Bids Summer 1956. CD 11/24/54.

▲ **O., Cleveland**—SCHOOL—Cleveland Institute of Music, Frank E. Taplin, pres., 3411 Euclid Ave., Zone 15, school on site at northeast corner of Cedar and Murray Hill Rds. $1,000,000.

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▲ O., Parma—APARTMENTS—George J. Goudreau & Co., 428 Warrensville Rd., Warrensville, 80 garden-type apartments on 50 acre tract in Knollwood, Brookpark Rd. area. $9,000,000.

O., Silver Lake—SHOPPING CENTER—Loblaw, Inc., 678 Baily Ave., shopping center, N. Front St. between Hudson Dr. and Pennsylvania R.R. near Cuyahoga Falls, $350,000.

O., Youngstown — SHOPPING CENTER — Edw. J. DeBartolo, 2640 Market St., shopping center on 20 acre site, McCartney Rd. and Lamar Ave. $500,000.

▲ Okla., Oklahoma City—MEDICAL CENTER—Ben C. Wileman, 5100 N. Shartel St., plans by Sorey Hill & Sorey, 809 N.W. 36 St., medical center and clinic, N.W. 50 and Pennsylvania Sts. $1,500,000.

▲ Pa., Phila.—OFFICE—Uris Bros., 575 Madison Ave., New York, N. Y., plans by Emory Roth & Sons, 575 Madison Ave., New York, N. Y.. (second bldg.) Office No. 2 Penn Center, $20,000,000, Sheldon A. Keast, 1201 Chestnut St., engr. Bids early in 1956. CD 2/4/53.

Tenn., Chattanooga—MOTEL—Pick Hotels, Corp., 20 N. Wacker Dr., Chicago, Ill., 100-unit motel to be operated as a Holiday Inn, on 4-acre tract on S. Broad St. $600,000.

▲ Tenn., Nashville—DEPARTMENT STORE EXPANSION—Castner-Knott's Department Store, 618 Church St., 5 story, balcony, bsmnt. department store expansion, $3,000,000.

▲ Tenn., Oak Ridge—BUILDING—Oak Ridge Institute of Nuclear Studies, Oak Ridge, plans by Hubert Bebb and Cooper & Perry, 211 W. Hill Ave., Knoxville, headquarters, incl. admin. bldg., technical library, dormitory and dining hall, medical div. bldg. with hospital, museum of Atomic Science and technical shops, S. Tulane and S. Illinois Aves. $3,250,000. No funds available.

Tex., Austin—RESORT—Carl W. Baigemann, c/o Beacon Lodge, Austin, plans by B. D. Riley, c/o owner, Austin, outdoor resort incl. clubhouse and rein.-con. swimming pool, at Lake Travis, 21 mi. northwest of here, $400,000.

▲ Tex., Austin—WARD UNITS—Bd. for Texas State Hospital & Special Schools, 4405 Lamar Blvd., plans by Fehr & Granger, 502 E. 5 St., ward units for mentally retarded, 300-bed, $780,000; plans by Kuehne, Brooks & Barr, Perry-Brooks Bldg., ward units, $1,170,000, for Austin State Hospital. CD 9/28.

▲ Tex., Austin—MOTOR HOTEL—Nash, Phillips-Copus Co., 1011½ Congress St., motor hotel, Hy. US 81 (Interregional Expressway). $1,000,000.

▲ Tex., Beaumont—SHOPPING CENTER—Ben Rogers & Assocs., Beaumont, plans by Irving R. Klein & Assocs., 1317 Austin St., Houston, shopping center, $2,500,000.

Tex., Bishop—DWELLINGS—Harold T. Bailey, Contractor & Assocs., 2728 Agnes St., Corpus Christi, 30 dwellings, $350,000; 35 dwellings, $377,795; 25 dwellings, $355,000; 28 dwellings, $345,500; 32 dwellings, $368,500, Golden Acres Subdivision.

▲ Tex., Houston—DWELLINGS—M. Louis Bernell, 9501 Chocolate Bayou, Houston, 39 dwellings, $373,600; 41 dwellings, $382,550; 36 dwellings, $363,188; 44 dwellings, $398,685, southeastern section city limits.

▲ Tex., Houston—DWELLINGS—Builtrite Homes, 4137 Reed Rd., 40 dwellings, $388,175; 32 dwellings, $355,000; 36 dwellings, $371,195; 34 dwellings, $359,900; 43 dwellings, $416,605; 38 dwellings, $381,220, southeast fringe of city limits.

▲ Tex., Houston—DWELLINGS—The Martin Building Co., 9501 Chocolate Bayou, Houston, 30 dwellings, $349,522; 38 dwellings, $375,160; 33 dwellings, $358,925; 42 dwellings, $396,642; 35 dwellings, $367,795, off southeastern section city limits.

▲ Tex., Dallas—SHOPPING CENTER—George F. Mixon & Wm. R. Troth, 9007 Devonshire Dr., shopping center, 30-acre tract, area Spring Valley and Colt Rd. $2,250,000.

▲ Tex., Dallas—DWELLINGS—George F. Mixon & Wm. R. Troth, 9007 Devonshire Dr., 14 dwellings, $379,750; 7 dwellings, $352,500; 8 dwellings, $360,000; 10 dwellings, $369,110; 12 dwellings, $365,000 off Alpha Colt and Beltine Rds.

Tex., Dallas—OFFICE—National Associated Investment Brokers, Inc., 2219 Pittman St., 10 story home office in Ling, N. Central Expressway Industrial Dist. $875,000.

Tex., Fort Worth—DWELLINGS—Whitehall Constr. Co., 6378 Greenway Rd., 42 frame dwellings. $350,000.

▲ Tex., Houston—DWELLINGS—Bailey-Evans Co., 4137 Reed Rd., 41 dwellings, $382,165; 45 dwellings, $398,200; 38 dwellings, $376,905; 33 dwellings, $355,912; 31 dwellings, $345,510; 36 dwellings, $366,290, southeast fringe sect. of city limits.

Tex., Houston—CHURCH—Church of Jesus Christ of Latter-Day Saints, 5514 Caroline St., church. $350,000.

▲ Tex., Houston—DWELLINGS—E. G. McMillan, c/o Briargrove, Houston, 28 dwellings, $345,750; 37 dwellings, $377,665; 39 dwellings, $389,900; 35 dwellings, $367,500; 31 dwellings, $351,000, off Westheimer at Rogers Rd.

▲ Tex., Houston — BUILDINGS — Rice Institute, 6100 Main St., group of buildings. $1,000,000.

▲ Tex., Houston—APARTMENTS—Shannon Pfeffer & Assocs., 3320 Binz St., plans by Lucian T. Hood & Rob. Hussman, 2317 Bissonnet St., eighteen 2 story, 160-unit apartments, 7-acre tract near Southern University, named "Camfield Apartments", $1,300,000.

▲ Tex., Lubbock—DWELLINGS—Mrs. C. D. Elliston, 2115 E. Broadway, 30 dwellings, $369,415; 25 dwellings, $354,900; 21 dwellings, $346,100; 28 dwellings, $361,825; 33 dwellings, $378,500.

Tex., Port Isabel—MOTEL—John and Donald Anderson, Florence, Kan. or c/o Geo. Beck, Harlingen, motel, at Padre Island. $400,000.

▲ Tex., San Antonio—DWELLINGS—Green Meadows Development Co., Inc., c/o Wm. Ochse & Assocs., 833 Bandera Rd., 25 dwellings, $364,190; 27 dwellings, $369,000; 31 dwellings, $378,075; 33 dwellings, $386,845; 22 dwellings, $349,175, Green Meadow Estates Subdivision.

▲ Wash., Seattle—HOSPITAL—Group Health Co-operative, 200 15 Ave. N, 150-bed hospital. $2,150,000.

▲ Wash., Tacoma—OFFICE—Weyerhaeuser Timber Co., Tacoma Bldg., plans by F. G. Frost & Assocs., 144 E. 30 St., New York, N. Y., 12 story, 40x100 ft. office, over $1,000,000. Work to begin next year. CD 8/22.

▲ Wash., Yakima—CLUB—Young Men's Christian Assn., Yakima, plans by J. W. Maloney, Larson Bldg., club bldg. $1,500,000. CD 9/22/53.

Ont., Sudbury—SCHOOL—Roman Catholic Diocese of Sault Ste. Marie, c/o Fabbro & Townsend, archts., 251 Lorne St. S., Marymount High School, D'Youville St. $600,000.

▲ Ont., Toronto—OFFICE—Owner, c/o J. Kuhl, 484 Avenue Rd., plans by Bergman & Hamann, 7 Adelaide St. E., 12 story, penthouse 75x90 ft. steel or rein.-con. stone facing office bldg., granite base construction, Richmond and York Sts.

▲ Que., Charlesburg — SHOPPING CENTER — Ivanhoe Corp., c/o Steinberg's Ltd., 5400 Hochelaga St., Montreal, shopping center. $2,500,000. To start in spring 1956.

▲ Que., Quebec City — SHOPPING CENTER — Ivanhoe Corp., c/o Steinberg's Ltd., 5400 Hochelaga St., Montreal, shopping center in Uppertown here. $2,500,000. To start in spring 1956.

INDUSTRIAL BUILDINGS

Ala., Haleyville—WAREHOUSE—Julius Kayser Corp., Haleyville, 60,000 sq. ft. warehouse for Haleyville Textile Mills, Inc. $325,000. Subject to city vote Dec. 14 on bonds.

Calif., Los Angeles—RECORDING STAGE—Twentieth-Century-Fox Film Corp., 10201 W. Pico Blvd., 80x120 ft. recording stage, 1421 N. Western Ave., $100,000. George J. Fosdyke, 459 S. Bixel St., consult. engr.

▲ Calif., San Bernardino—STEAM GENERATING PLANT—California Electric Power Co., 3771 W. 8 St., Riverside, 240,000 kw. steam generating plant, near here. $9,700,000. Applied to State Utilities Com. for authority. To go ahead Jan. 1956.

Calif., Tracy—PLANT—Sun Valley Creamery, 42 W. 10 St., creamery plant, $100,000.

Conn., North Haven—WAREHOUSE, etc.—Harold Kahn Co., 781 Whitney Ave., plans by Sam Jerner Assoc. Thayer St., Providence, R. I., 59,000 sq. ft. warehouse and office, 153 Washington St. $500,000.

Conn., North Haven—WAREHOUSE, etc.—Northco Realty Co., 595 Ellsworth Ave., New Haven, plans by Samuel Lerner Assoc., 223 Thayer St., Providence, R. I., 168x500 ft. warehouse and salesroom, Washington Ave. $800,000. Bids early in December.

▲ Ind., Indianapolis—WAREHOUSE, etc.—The Kroger Co., 1240 State St., Cincinnati, O., warehouse and bakery, 174-acre site south of New York Central's Big Four tracks west of Lynhurst, $3,000,000.

Kan., Kingman—SHOPS, etc.—Peterson Farm Machinery Co., Kingman, plans by Sam L. Mobley & James H. Safely, assoc. archts., 915 Broadway, 1 story, 32,000 sq. ft. masonry shops, sales and office, Hy. 54 east of city limits, $100,000. CD 11/17.

Mass., Millbury—STORAGE—Felters Co., 22 West St., plans by Harry L. Meacham Assoc., North Main St., 109x138 ft. storage bldg., River St. $120,000.

▲ Minn., St. Paul—INDUSTRIAL CENTER—M. Capp Mfg. Co., 1143 Dupont Ave. North, Minneapolis, plans by S. C. Smiley, 1645 Hennepin Ave., Minneapolis, "Midway Industrial Center," incl. warehousing, distributing and light mfg. facilities, Vandalia St., 3 blocks north of University Ave. $3,000,000.

N. Y., Brooklyn—FACTORY—Franklin Kent Corp., 70 Franklin Ave., plans by M. Allen Schiendorf, 356 Fulton St., Zone 1, 2 story metal products factory, 55-57 Franklin Ave. $150,000. To go ahead in Spring of 1956.

▲ O., Cambridge—PLANT—RCA-Victor Co., 5040 Lester St., Cincinnati, 210,000 ft. plant addn. to existing 135 ft. plant. $2,700,000.

O., Toledo—FACTORY—McKay-Davis Chemical Co., 328 N. Westwood St., rebuild engineering, packaging and office section of plant, $500,000.

▲ O., Twinsburg—PLANT—Chrysler Corp., 3675 E. Outer Dr., Detroit, Mich., plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., auto body stamping plant. $85,000,000. Location changed. CD 10/7, under O., Macedonia.

▲ O., Brooklyn—WAREHOUSE—American Greetings Corp., 1328 W. 78 St., Cleveland, Zone 2, warehouse and plant at Tiedeman and Memphis Rds. $2,000,000, Austin Co., 16112 Euclid Ave., Cleveland, Zone 12, consult. engr. CD 3/10.

Okla., Sand Springs—PLANT—National Tank Co., Sand Springs, plant expansion, $500,000, Jay P. Walker, c/o owner, engr.

▲ Pa., Meadville—SHOPS—Erie Railroad Co., B. Blowers, ch. engr., Midland Bldg., Cleveland 15, O., car repair shops, $2,000,000, Osborn Eng. Co., 7016 Euclid Ave., Cleveland 3, O., consult. engr. Bids in March or April. CD 10/19.

Tex., Dallas—WAREHOUSE—Kelly & Cleveland Constr. Co., 1315 Pacific St., masonry warehouse, Brook Hollow Industrial Dist. $100,000.

▲ Tex., Henderson—ELECTRIC GENERATING PLANT—Texas Power & Light Co., Fidelity Union Life Bldg., Dallas, electric generating plant Stricker Creek, near here. $7,500,000.

Tex., Houston — PARKING CENTER — S. N. Adams, Adams Petroleum Center, c/o Highland Village Shopping Center, 4000 Westheimer St., auto parking center, $450,000.

Tex., Lufkin—PLANT—Greater Buffalo Press, Inc., 302 Grote St., Buffalo, N. Y., printing plant. $500,000.

▲ Ont., Cornwall—CHEMICAL FACTORY—Cornwall Chemical Ltd., subsidiary of Canadian Industries (1954) Ltd., 1253 McGill College Ave., Montreal, Que., chemical factory, Second St. W. $1,000,000.

Ont., Guelph—PLANT—Bucyrus-Erie Co., South Milwaukee, Wis., plans by Prack & Prack, 310 Main St. E., Hamilton, plant, $600,000.

▲ Ont., Sarnia—PLANT EXPANSION—Dow Chemical Co. of Canada Ltd., 600 University Ave., Toronto, plant expansion, incl. pentachlorophenol (chemical wood preservative) plant, $1,000,000; second ethylene plant $3,000,000; expanded chlorine and caustic soda units with other expansion over $1,000,000. G. B. MacCoy, c/o owner, Vidal St. S., Sarnia, engr. CD 4/18/52.

Que., Montreal—PLANT—Hygrade Food Products, Inc., 5437 St. Lawrence Ave., plans by Harry Stillman, 2183 Maplewood Ave., 2 story, 150x300 ft., steel frame plant, Guizot and Jeanne Mance Sts. $600,000.

Que., Montreal—PLANT—Pickfair Sportswear Ltd., 7122 Waverley St., plant extension. $100,000.

▲ Sask., Regina—PLANT—Western Clay Products Ltd., 201 Connaught Block, Saskatoon, clay products plant. $1,250,000.

UNCLASSIFIED

Conn., Hartford—SPORTS ARENA—Abraham J. Bronstein, et al, 178 Saybrook St., sports arena North Meadows, 25 acre tract adjacent North Meadows Drive-In Theatre, $500,000.

Illinois—RURAL DISTRIBUTION LINES—Illinois Rural Electric Co., Winchester, 34 mi. rural distr. lines 12.5 mi. 69 kv transmission lines, addnl. sub-station facilities, sys. imprvs., Pike Co. $520,000.

Ill., Beardstown—PARK IMPRVS.—Beardstown Community Park Dist. Bd. Trustees, Beardstown, voted $100,000 bonds, park imprvs. incl. swimming pool $110,000.

▲ Iowa—GAS STORAGE—Northern Natural Gas Co., 2223 Dodge St., Omaha, Neb., piping, etc. at natural gas storage reservoir near Redfield, $2,438,500. F. B. Rabb, c/o owner, engr.

Kentucky—RURAL DISTRIBUTION LINES—Licking Valley Rural Electric Co-operative Corp., West Liberty, 200 mi. rural distr. lines, sys. imprvs., Morgan Co. $750,000. CD 9/9/48.

Mich., Saginaw—PARKING FACILITY—City, City Hall, tri-level parking facility Baum and Federal Sts. $890,000. CD 1/5/54.

Mo., St. Charles—Park—City, City Hall, defeated $175,000 bonds Nov. 15, city park. CD 9/6.

Mo., St. Louis County—TELEVISION TRANSMITTER TOWER—KWK-TV, Robert T. Convey, pres.-genl. mgr., Globe-Democrat Tower Bldg., 12 Blvd. and Cole St., St. Louis, Zone 3, furnishing, erecting 1,136 ft. television transmission tower, Reavis Barracks Rd. near Union Rd. $300,000.

▲ New Mexico-Texas—PIPE LINE—Makco Refineries, Inc., Roswell, N. M., laying products pipe line from Artesia, N. M., to El Paso, Tex. $1,500,000.

▲ Okla., Tulsa—FAIRGROUND IMPRVS.—Tulsa County, Court House, defeated bonds Nov. 15, improve fairgrounds, $1,300,000. W. R. Wooten, city engr. CD 11/1.

▲ Okla., Tulsa—PARK IMPRVS.—City, City Hall, voted bonds Nov. 15, park imprvs. $1,000,000. W. R. Wooten, city engr. CD 11/1.

Okla., Tulsa—TRAFFIC SIGNALS—City, City Hall, voted bonds Nov. 15, traffic signals, $150,000. W. R. Wooten, city engr. CD 3/5/52.

Pa., Phila.—RECREATION CENTER—Dpt. Procurement, City Hall Annex, Venice Park Recreation Center and playground, $150,000. CD 2/8/43.

South Carolina—RURAL DISTRIBUTION LINES—Horry Electric Co-operative, Conway, 135 mi. rural distr. lines and sys. imprvs. Horry Co. $320,000.

▲ Tenn., Nashville — STATE FAIR — Tennessee State Fair Bd., Wedgewood Ave., renovation, remodeling Tennessee State Fair, $1,500,000.

Tex., Port Isabel—RECREATION FACILITIES—George Beck, Harlingen, recreation facilities, concrete swimming pool, at Padre Island. $150,000.

Tex., Port Isabel—RECREATION FACILITIES—R. Copeland & R. Boswell, Mission, recreation facilities, swimming pool at Padre Island. $100,000.

Tex., San Antonio — AREA LIGHTING, etc. — Green Meadow Development Co., c/o Wm. Ochse & Assocs., 833 Bandera Rd., area lighting, $75,000; natural gas lines, $75,500, Green Meadows Estates Subdivision.

Wyoming—RURAL DISTRIBUTION LINES—Big Horn Rural Electric Co., Basin, 5 mi. rural distr. lines, 6 mi. 34.5 kv transmission line, sub-station facilities, sys. imprvs., Big Horn Co. $320,000.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

December 16 Vermont December 20 Massachusetts

BUILDINGS—BA

▲ **Mass., Springfield**—SCHOOL—BA 12/15—City, P. Bldgs. Dpt., City Hall, Junior High School, Bradley and Wilbraham Rds. $2,500,000. Plans deposit $100, refundable. Extended date, Morris W. Maloney, 220 Dwight St., archt. CD 11/9.

Vt., Essex Junction—HIGH SCHOOL—BA 12/20—Essex Junction Graded School Dist., Albert H. Cass, chn., Essex Junction, high school, Maple St. $700,000. Plans deposit $50. Extended date. Freeman, French & Freeman, 138 Church St., Burlington, archts. CD 11/18.

HEAVY CONSTRUCTION—LB & CA

MAINE—State Hy. Comn., State House, Augusta,
The Bridge Constr. Corp., Augusta, Me. LB $947,332. 4.492 mi. F. A. Proj. F 026-1 (4), Woolwich. Bids Nov. 23.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 13 New Jersey December 22 Pennsylvania

STREETS AND ROADS

December 13 New Jersey December 22 Pennsylvania

HEAVY CONSTRUCTION—LB & CA

▲ **Manning, Maxwell & Moore, Inc.**, W. Broadway, Muskegon Heights, Mich. LB $2,062,474. Schedule 1, furnishing 49 intake gates for Barnhart Island Power Plant, St. Lawrence Contr. No. P24, NEW YORK. Power Auth. of the State of New York, 270 Broadway, New York 7, N. Y. Bids Nov. 30. CD 11/4;

Alco Products, Inc., 30 Church St., New York, N. Y. LB $430,584. Schedule 2, furnishing of service and emergency gates for Massena Intake; LB $2,531,315. Schedule 3, overall contract covering the manufacturing and delivery of all the equipment called for in the bidding, (New York). CD 11/4.

† **Joseph Halpern**, 33-49 Vernon Blvd., Long Island City, N. Y. CA $985,650. (7 bidders) Special AAA Facilities (FY 1955 program) at Orangeburg, ENG-30-075-56-21, NEW YORK. U. S. Eng., 111 E. 16 St., New York 3, N. Y. CD 11/3, under LB.

NEW JERSEY—State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,
Reid Contrg. Co., Inc., P. O. Box 215, Woodbridge, N. J. LB $920,648, (6 bidders) grading 1.313 mi. Route 72 (Section 5-B) from Hilliard to Ship Bottom, Stafford Twp., Ocean Co. Bids Nov. 22. CD 11/3.

▲ **NEW JERSEY**—State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,
H. J. Elkins, Inc., 69 St. and Kingsessing Ave., Phila., Pa., LB, $1,109,623 (10 bidders) grading, bridge paving 1.329 mi. Route 29 Freeway Sect. 13B from Aberfeldy Dr. to Parkside Ave., City of Trenton, U-198 (2), Mercer Co. Bids Nov. 29. CD 11/10.

▲† **Blount Brothers Constr. Co.**, Bell Bldg., Montgomery, Ala. LB $2,432,900. Item 1, $2,245,900 Item 2. (11 bidders) 36 in. variable pressure water tunnel, at David W. Taylor Model Basin, NOY 85511, CARDEROCK, MD. Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. Bids Nov. 30. CD 9/27.

BUILDINGS—LB & CA

▲ **Leon D. DeMatteis & Sons, Inc.**, Elmont, N. Y. CA $1,377,827. Hempstead Turnpike Junior High SCHOOL, ELMONT, N. Y. Bd. Educ., Central High School Dist. No. 2, Towns of Hempstead and North Hempstead, Elmont, N. Y. Frederic P. Wiedersum, 85 W. Hawthorne Ave., Valley Stream, N. Y., archt. Bids Oct. 28.

▲ **Southern Commercial Constr. Co.**, 1341 Pennsylvania Ave. S.E., Wash., D. C. CA $1,225,000. Marlow Heights SCHOOL, Silver Hill, UPPER MARLBORO, MD. Prince George's Co. Bd. Educ., Upper Marlboro, Md. Bids Nov. 28. CD 11/16.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

December 21 Louisiana

BUILDINGS—BA

Ky., Louisville—SCHOOL—BA 12/15—Jefferson Co. Bd. Educ., 618 W. Jefferson St., county elementary school, Johnsontown and Terry Rds. $610,773. Plans deposit $15, refundable, Hartstern, Louis & Henry, McDowell Bldg., archts., E. R. Ronald & Assoc., 554 S. Third St., engrs. CD 11/2.

▲† **Va., Fort Eustis**—HOUSING—BA 12/21—U. S. Eng., foot of Front St., Norfolk, Zone 1, 127 units of permanent housing, 37 bldgs., ENG-44-110-56-13. $1,500,000.

▲† **Va., Fort Lee**—HOUSING—BA 12/21—U. S. Eng., foot of Front St., Norfolk, 76 units permanent family housing, 21 bldgs., ENG-44-110-56-12. $1,150,000.

HEAVY CONSTRUCTION—LB & CA

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,
N. C.—Bollinger Bros., Lumberton, N. C., LB $152,604. est. $175,000-$200,000. STBC, b. conc. binder and surf. 3.03 mi. Proj. 3912, F-3777 (2), Robeson Co.;
N. C.—Wilson Constr. Co., Inc., Box 603, Salisbury, N. C., LB $942,707, est. $400,000-$500,000, grading and structures 2.15 mi. US 1 (relocation), Proj. 4859, U-694 (4), F-532 (9), Wake Co.;
N. C.—Asheville Contr. Co., Box 5119, Biltmore Sta., Asheville, N. C., LB $530,671, est. $400,000-$500,000, grading 8.8 mi. US 70 (relocation), Proj. 8183, IN-F-FI-700 (7), Burke Co.;
N. C.—W. E. Graham & Sons, Box 268, Cleveland, N. C., LB $216,128, est $250,000-$300,000, grading, CABC, bit. surf. tr. 4.27 mi. US 221 (relocation), Proj. 8812, F-231 (5), Rutherford Co.; LB $507,864, est. $400,000-$500,000, grading, CABC, bit. surf. tr. 12.46 mi. US 23 (relocation), Proj. 9622, F-707 (1), Macon Co. Bids Nov. 29. CD 11/17.

▲† **McDonough Constr. Co. of Georgia**, 7 Baltimore Pl., N. W., Atlanta, Ga., LB $2,213,013. eight 172-man subsistence bldgs., one 2,000-man subsistence bldg., Marine Corps Auxiliary Landing Field, NOY 91176, BEAUFORT, S. C. P. Wks. Officer, Sixth Naval Dist. Bldg. 12, U. S. Naval Base, Charleston, S. C. Bids Nov. 23. CD 10/28.

▲ **Ambrosius Constr. Co.**, 2791 S. Floyd St., Louisville, Ky. CA $739,058. Contr. 1, 35,000 ft. 6- to 27-in. sanitary sewers, 15,000 ft. 6- to 14-in. force mains, 2,400 ft. 1- to 4-in. water sewer lines, FRANKFORT, KY. City, City Hall, Frankfort, Ky. Bids Nov. 10, awarded Nov. 28, CD 11/21, under LB;
G. E. Moore Co., Inc., Box 1069, Greenwood, S. C. CA $850,801. Contr. 5, sewer imprvs., 153,000 ft. 6- to 12-in. sanitary sewers, 4,000 ft. 6 in. force mains, (Frankfort, Ky.).

▲ **W. L. Hailey Co., Inc.**, 314 42 Ave. N., Nashville, Tenn. CA $1,314,922. Upper Dry Run Trunk Sewer, Sect. E, Contr. 206, LOUISVILLE, KY. Metropolitan Sewer Dist., 412 Market St., Louisville, Ky. Bids Nov. 10, awarded Nov. 25. CD 11/17, under LB.

BUILDINGS—LB & CA

▲ **Bd. Comrs. Kershaw Co.**, Camden, S. C. rejected bids Nov. 16, Kershaw County HOSPITAL, CAMDEN, S. C. LB $1,163,631. Necessary funds not available. CD 11/28, under LB.

▲ **Daniel Constr. Co.**, 429 N. Main St., Greenville, S. C., CA est. $1,000,000. 100,000 sq. ft. WOOLEN PLANT, ST. STEPHEN, S. C. Albany Felt Co., 1373 Broadway, Menands, Albany, N. Y.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 14 Michigan December 20 Wisconsin

STREETS AND ROADS

December 13, 20 Ohio December 14 Michigan
December 20 Wisconsin

▲† **Ohio**—NIKE SITES—BA 2/2—U. S. Eng., New Post Office Bldg., Pittsburgh, Pa., six Nike sites at various sites in and about Cleveland. $6,000,000-$7,500,000. CD 10/13, under LB.

BUILDINGS—SLC

▲ **O., Bedford**—SCHOOL—Marist Order Corp. of Ohio, c/o Stickle & Assoc., archts., 2422 Prospect Ave., Cleveland, Zone 15, soon lets contract, Chanel High School. $1,000,000. CD 9/9, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **Sam W. Emerson Co.**, 1836 Euclid Ave., Cleveland 15, O. CA Est. $1,000,000. 2,000 sq. ft. distr. substation on Chester Ave. west of 40 St., Cleveland, OHIO. Cleveland Electric Illuminating Co., Public Square, Cleveland, O. C. J. Beller, supt. elec. and engr. operations. Awarded Nov. 1. CD 11/28/52.

▲ **OHIO**—State Hy. Dpt., Columbus,
Wander & Mason, Inc., Worthington, O. CA $3,333,652. approach and elimination of six hy. and two railroad crossings at Spring-Sandusky Interchange, Columbus, Franklin Co. CD 11/28, under LB.

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—C. F. Replogle Co., 122½ N. Court St., Circleville, O. LB $1,666,669, est. $1,886,000. (6 bidders) Type T-71 and structures 4.158 mi. SR 4-(16.53-19.15), F 581 (10), Butler Co.;
O.—The Horvitz Co., 4375 E. 146 St., Cleveland, O. LB $1,389,329, est. $1,297,000. (2 bidders) Type T-35 on B-20 and structures 3.727 mi., USR 6-(6.41-7.95) F-44 (4), City of Lorain, Lorain Co.;
O.—Don S. Cisle, Contractor, Inc., 808 First National Bank Bldg., Hamilton, O. LB $209,868, est. $187,300. (3 bidders) Type T-71 and T-35 0.509 mi., SR 4-(6.00-6.41), city of Hamilton, Butler Co.;
O.—Legg & Davis Contractors, 830 W. Lane Ave., Columbus, O. LB $90,797, est. $86,000. (2 bidders) Type various 0.746 mi. USR 36-22.17, SR 3-20.14, USR 33-10.41, SR 665-16.17, Delaware and Franklin Counties;
O.—Peter Kiewit Sons' Co., 15860 Lorain Ave., Cleveland, O. LB $923,353, est. $1,086,500. (3 bidders) Type T-35 and structure 11.931 mi. SR 15-(2.53-5.84) (6.50), (.8.47-15-22), city of Byran, Williams Co.;
O.—Tiffin Excavating Contractors, Inc., 94 Valleyview Park, Tiffin, O. LB $118,393, est. $115,800 (3 bidders) Type T-32 on B-119 and structures 0.539 mi. SR 53-7.30, SR 699-9.56, Wyandot Co. Bids Nov. 22. CD 11/4.

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—J. A. Jones Constr. Co., Box 966, Charlotte, N. C. CA $5,252,297, est. $5,607,500. Type T-71 and structures 13.064 mi., U.S.R. 40R, Sects. 23.41, 0.00, (Clark, Greene and Montgomery Counties) Wayne Twp., Mad River and Bethel Twps., and Bath Twp., Clark and Montgomery Counties; CA $2,741,199, est. $3,143,500. Type T-71 and structures 8.56 mi., U.S.R. 30SR, Sect. 6.21, U.S.R. 30R, Section 0.00B, Springfield and Madison Twps., Richland Co. CD 11/25, under LB.

† **W. L. Johnson Constr. Co.**, P. O. Box 6668, Columbus, O. LB $803,016, est. $1,016,688 (2 bidders). V. H. B. runway exten. airfield lighting, Wright-Patterson Air Force Base, ENG-15-029-56-10, DAYTON, O. U. S. Eng., P. O. Box 59, Louisville, Ky. Bids Nov. 29. CD 10/18.

▲ **Herlihy-Mid Continent Co.**, 135 S. La Salle St., Chicago 3, Ill., CA $3,915,582, 68 m.g. reservoir part of filtration plant at Navy Pier, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Oct. 27, awarded Nov. 25. CD 11/4, under LB.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison,
Wis.—Raemisch Constr. Co., Middleton, Wis., LB $288,245. Contract 1, 3.053 mi. C.T. Hys. "M" and "Q", Projs. S 0642 (2), S 0455 (1), S 0455 (2), Dane Co.;
Wis.—H. Turner & Son, Boscobel, Wis., LB, $507,443 Contract 1, grade, ballast, structures 4.229 mi. S.T. Hy. 69, Proj. T 032-1 (3), Green Co.; LB $219,753, Contract 1, b. conc. 10.578 mi. U.S. Hy. 51, Proj. F 05-4 (3) Lincoln Co.;
Wis.—Frank Bros., Milton Junction, Wis., LB $240,747, Section 2, grading 2.049 mi. S.T. Hy. 69, Proj. T 032-1 (3) and T 032-1 (4) Green and Dane Counties;
Wis.—Payne & Dolan of Wisconsin, 735 N. Water St., Milwaukee, Wis., LB $412,690, Contract 1, b. conc. 8.291 mi. S.T. Hy. 74, Proj. S 0168 (3) Waukesha Co.;
Wis.—Reliance Constr. Co., 1011 S. 8 St., Sheboygan, Wis., LB $84,007, Contract 1, b. conc. 1.61 mi. S.T. Hy. 42 and U.S. Hy. 10 and 141, Proj. T 5301 (2) and T 5301 (3), Manitowoc Co.;
Wis.—Mathy Constr. Co., 508 Hoeschler Bldg., La Crosse, Wis., LB $154,044, Contract 1, single aggreg. bit. 12.484 mi. S.T. Hy. 95, Proj. T 053 (8) and T 053 (9), Trempealeau and Jackson Counties; LB $106,314, Contract 1, b. conc. 4.013 mi. U.S. Hy. 12. Proj. T 04-3 (21), Jackson Co. Bids Nov. 29. CD 11/11.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
L. A. Davidson Co., 213 E. Joseph St., Lansing, Mich. LB $1,269,245, est. $1,500,000. raising two west spans Grand River Bridge, wid'n. structure, constr. retaining walls, removal run around tracks, underpass, grade separation, reconstr. Saginaw St. between Washington and Pennsylvania Aves., F B1 of 33-6-8 C1-U and UXI of 33-6-12 C1-U (F 242 17), Ingham Co. Bids Nov. 22. CD 11/10.

▲† **Jarees Constr. Co.**, P. O. Box 78, Battle Creek, Mich. CA $1,162,440. Family Housing, Kinross Air Force Base, ENG-20-064-56-24, KINROSS, MICH. U. S. Eng., 600 W. Jefferson Ave., Detroit, Mich. CD 11/14, under LB.

BUILDINGS—LB & CA

▲ **Franklin Bros. Realty Co.**, 4138 Lorain Ave., Cleveland 13, O. Own Forces. $5,000,000. 410 HOMES on 97 acre tract on Rte. 303 east of Pearl Rd., Brunswick Twp., BRUNSWICK, O. Awarded Nov. 28.

▲ **Penker Constr. Co.**, 1030 Summer St., Cincinnati, O. CA $1,030,950. Washington Park Elementary SCHOOL, CINCINNATI, O. Bd. Educ., 608 E. McMillan St., Cincinnati, O. Bids Oct. 27, awarded Nov. 28. CD 11/3, under LB.

Wood Constr. Co., Bellefontaine, O. CA $864,300. general contract Col. White SCHOOL addn., DAYTON, O. Bd. Educ., 348 W. First St., Dayton, O. Bids Nov. 4, awarded Nov. 17.

Morris Skilken & Co., Inc., 696 E. Broad St., Columbus, O. CA $658,000. general contract General Sherman High SCHOOL, Fifth and Union Sts., LANCASTER, O. City School Dist., Lancaster, O. CD 5/10/54.

▲ **Kay Development Corp.**, Peter Kliest, pres., 21670 Center Ridge Rd., Rocky River, O. Own Forces. $1,250,000. 90 HOMES, Oberlin Ave. near W. 29 St., LORAIN, O.

▲ **Creative Homes, Inc.**, Maurice J. Fishman, pres., 6465 Pearl Rd., Cleveland 30, O. Own Forces. $24,000,000. 1,100 ranch type HOMES on 300 acre site at Pearl and W. 130 St., PARMA HEIGHTS, O. Don Kromer, c/o owner, archt.

Wood Constr. Co., Bellefontaine, O. CA $885,500. new Elementary SCHOOL, altering present bldg., NEW RICHMOND, O. Bd. Educ., Market St., New Richmond, O. Bids Nov. 12, awarded Nov. 28. CD 11/23, under LB.

▲ **Huber, Hunt & Nichols**, 2450 S. Tibbs St., Indianapolis, Ind., CA, $2,700,000. 3 story, 270,000 sq. ft. ENGINEERING Bldg., 95-acre site, Tibbs and Raymond Sts., INDIANAPOLIS, IND. Allison Div. of General Motors Corp., Speedway, Indianapolis, Ind. CD 9/30.

▲ **Joseph J. Duffy Co.**, 4994 Elston St., Chicago, Ill., CA $1,347,935, APARTMENT, 3995 South Lake Park Ave., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, Ill. Bids Apr. 19, awarded Nov. 24. CD 4/27, under LB.

▲ **Hope Constr. Co.**, 3520 N. Knox Ave., Chicago, Ill., CA, $1,000,000. SHOPPING CENTER, 103 St. and Kedzie St., CHICAGO, ILL. Geo. W. Prasses & Co., 111 W. Washington St., Chicago 2, Ill. Awarded Nov. 25.

▲ **Paschen Contractors, Inc.**, 2739 Elston Ave., Chicago, Ill., CA, $1,250,000, 8 story, bsmnt., OFFICE, 866 N. Dearborn Parkway, CHICAGO, ILL. The Salvation Army, 717 N. State St., Chicago, Ill. Bids Sept. 30, awarded Nov. 23. CD 9/20.

▲ **Harris Constr. Co.**, 3535 Peterson Rd., Chicago, Ill. Own Forces. $1,450,000. 80 HOMES, water, sewers and paving, DEERFIELD, ILL. C. W. Greengard, 730 Waukegan Rd., Waukegan, Ill., engrs.

C. G. Schmidt, Inc., 4199 N. Richards St., Milwaukee, Wis., CA, $964,500 general contract HIGH SCHOOL, GRANVILLE, WIS. Jt. Union High School Dist., 7717 W. Good Hope Rd., Milwaukee, Wis. Bids Nov. 9. CD 11/17, under LB.

R. C. Hendrick & Son, 427 Atwater St., Saginaw, Mich. CA $819,320. general contract HIGH SCHOOL, MOUNT PLEASANT, MICH. Bd. Educ., Mount Pleasant, Mich. CD 11/25, under LB.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 13 Iowa
December 15 Montana
December 16 Minnesota

STREETS AND ROADS

December 13 Iowa

BUILDINGS—BA

▲ **Tex., Pasadena**—STORE—BA 12/20—Sears Roebuck & Co., 4207 Main St., Houston, 200,000 sq. ft. masonry mercantile retail store. $2,225,000. Cowell & Neuhaus, 5619 Fannin St., Houston, archts. George L. Dahl, 2101 N. St. Paul St., Dallas, archt.-engr. CD 8/4.

HEAVY CONSTRUCTION—LB & CA

Martin K. Eby Constr. Co., Inc., 610 N. Main St., Wichita, Kan. LB $777,990, est. $687,000. ramp addns., pneumatic compressor installation, WICHITA, KAN. Boeing Airplane Co., Plant No. II, Personnel Bldg., Wichita, Kan. (Correction-contractor's price). CD 11/29, under LB.

▲ **TEXAS**—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
TTA—Austin Bridge Co., P. O. Box 1590, Dallas, Tex. CA $804,429, Contr. D-FW 31, continuous rolled beam bridges at T. & P. R.R. spur near Grand Prairie, Gifford-Hill R.R. spur and Mountain Creek, Dallas Co.;
TTA—Ottinger Constr. Co., P. O. Box 12305, Fort Worth, Tex., CA $864,985, Contr. D-FW 32, continuous rolled beam and plate girder bridges at Loop 12 and T. & P. R.R., Loop 12 interchange, Chalk Hill Rd. and T. & P. R.R. spur near Loop 12, Dallas Co. Bids Nov. 23, awarded Nov. 29. CD 11/28, under LB.

▲ **TEXAS**—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
Cage Bros., 6959 San Pedro St., San Antonio, Tex., CA $1,818,806. Contr. D-FW 26, grading, drainage 4.795 mi. from 0.36 mi. west of Duncan-Perry Rd. to Meyers Rd., Dallas Co. Bids Nov. 22, awarded Nov. 29. CD 11/28, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—Lott Constr. Co., Ltd., 4029 Bryce Ave., Fort Worth, Tex., CA $523,134, grading, structures, roadbed tr. 4.519 mi. Hy. US 77, Proj. IN 230 (2), Denton Co.;
Tex.—South Texas Constr. Co., P. O. Box 3536, Corpus Christi, Tex., CA $543,470, foundation course and b. conc. 8.019 mi. Hy. US 59, Proj. C 27-8-37, Fort Bend Co. Bids Nov. 22, awarded Nov. 29. CD 11/28, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—Central Constr. Co., Inc., & Joe W. Hendrix & Sons, P. O. Box 12116, Dallas, Tex., CA $977,006, c. conc. pavement, stabil. shoulders, 4.1 mi. Hy. US 67, Proj. E 10-12-15, Bowie Co.;
Tex.—Ernest Loyd, P. O. Box 1120, Fort Worth, Tex., CA $585,476, flexible base, two course surf. tr. 16.871 mi. Hy. SH 132. Proj. S 661 (2), Wheeler Co.; LB $797,978, grading and structures 10.185 mi. Hy. US 81, Proj. IN 40 (14), Bell Co.;
Tex.—Hugh McMillan, P. O. Box 1227, El Paso, Tex., Ca $682,765, grading, structures, railroad relocation, storm sewer, base and conc. and HMAC pavements 1.026 mi. Hy. US 80, Proj. IN 439 (28), El Paso Co.;
Tex.—M. E. Ruby, San Marcos, Tex., CA $520,478, flexible base, two course surf. tr. 11.117 mi. Hy. US 281, Proj. F 723 (1) and (2), Burnet and Blanco Counties;
Tex.—C. Hunter Strain, P. O. Drawer 631, San Angelo, Tex., CA $1,019,769, flexible base, b. conc. 20.797 mi. Hy. US 80, Proj. IN 444 (23) (37), etc., Taylor Co.;
Tex.—Strain Bros., Inc., P. O. Drawer 1631, San Angelo, Tex., CA $844,355, flexible base, b. conc. 17.355 mi. Hy. US 80, Proj. F 263 (9), Ward, Crane and Ector Counties;
Tex.—Dean Word Co., P. O. Box 330, New Braunfels, Tex. CA $538,643, foundation course, flexible base, b. conc. 6.306 mi. Hy. US 81. Proj. IN 66 (12), Comal Co. Grand total $5,966,470. Bids Nov. 23. CD 11/28, under LB.
COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver,
Roberts Constr. Co. & Western Paving, 5105 N. Washington St., Denver, Colo., CA, $746,210, est. $787-313. c. conc. 8.395 mi. Wiggins Junction and Fort Morgan, Morgan Co., IN-003-1 (6). Bids Nov. 18, awarded Nov. 22. CD 11/25, under LB.

BUILDINGS—LB & CA

▲ **Southeast Missouri Hospital, Bd. Trustees**, Robert D. Harrison, pres., 302 Himmelberger-Harrison Bldg., Cape Girardeau, Mo., rejected bids Nov. 22, 4 story, ground floor, 44x178 ft., 39x110 ft., brick, steel, concrete hospital addn., alterations, CAPE GIRARDEAU, MO. LB $1,329,038. New bids in January. CD 11/16.

▲ **Farnsworth & Chambers Co., Inc.**, Box 74, Houston, Tex. LB $2,667,000, est. $2,750,000, 15 story HOSPITAL unit and appurtenances, HOUSTON, TEX. M. D. Anderson Foundation, and Hermann Hospital Estate, 1st. Natl. Bank Bldg., Houston, Tex. Bids Nov. 22. CD 10/26.

▲ **Lembke, Klough & King**, Box 455, Albuquerque, N. M. LB $1,964,591, est.. $1,650,000. 222x337 ft. GYMNASIUM, 2,000 auto parking, 2,000 locker spaces, swimming pool, ALBUQUERQUE, N. M. University of New Mexico, c/o Bd. Regents, Albuquerque, N. M. Bids Nov. 16. CD 10/27.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

December 21, 22 California

BUILDINGS—BA

▲ **Calif., San Jose**—SCIENCE—BA 12/29—State Div. Architecture, P. Wks. Bldg., Sacramento, 3 and 2 wings existing science bldg. addn. $1,600,000. Plans deposit $50. CD 1/13.

BUILDINGS—SLC

▲ **Calif., Redondo Beach**—RESTAURANT—Harold Gelber, c/o Martin Stern, Jr., 450 N. Beverly Dr., Beverly Hills, soon lets contract 22,000 sq. ft. Plush Horse Restaurant, $1,000,000. CD 7/19, under Calif., Los Angeles.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,
American Bridge Div., U. S. Steel Corp., 564 Market St., San Francisco, Calif., LB, $9,489,126, est. $10,149,-000. (4 bidders) steel superstructure of parallel Carquinez Bridge, composed of two 1,100 ft. main cantilever spans, two 500 ft. and anchor spans, one 150 ft. center tower span and structural steel girder approach span to provide 52 ft. clear roadway, Contra Costa and Solaon Counties. Bids Nov. 30. CD 10/14.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,
Charles L. Harney, 575 Berry St., San Francisco, Calif., LB, $1,730,560, est. $2,050,000 (3 bidders) wid'n. 7.4 mi. Eastshore Freeway from 4- to 6-lane between State Rte. 228 and 0.2 mi. north of High St., Oakland, Alameda Co. Bids Nov. 30. CD 11/4.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St. Sacramento,
Mason and Harger, Silas Mason Co., Inc., and F. S. Roland Jr., Inc., 599 Front St., San Francisco, Calif., LB $5,454,693, est. $6,884,000 (3 bidders) parallel Carquinez Bridge substructure of rein.-con. abutments and piers, Contra Costa and Solano Counties. Bids Nov. 29. CD 10/14.

† **Campbell Constr. & Equip Co.**, 1150 Folsom St., San Francisco, Calif., LB $801,245 (10 bidders) "NIKE" station with facilities, ENG-56-1, San Francisco and San Mateo Counties, CALIFORNIA. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Nov. 1. CD 10/24.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,
Ferry Bros., John M. Ferry, Peter L. Ferry and L. A. and R. S. Crow, 5201 San Fernando Rd., Glendale, Calif., LB, $7,098,690, est. $8,209,000. (10 bidders) 6-lane 2.9 mi. divided freeway, 2 overcrossings and 3 undercrossings etc., as part of Carquinez Twin Bridge and approaches, Contra Costa Co. Bids Nov. 28. CD 10/14.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 20 British Columbia

BUILDINGS—BA

▲ **Que., Montreal**—PLANT—BA 12/14—Jenkins Bros. Ltd., 617 Remi St., plant extensions, incl. 100,000 sq. ft. machine shop, 12,000 sq. ft. pattern shop, 2 story, bsmnt. office bldg., cafeteria and service bldg. and guardhouse, steel frame, brick. Over $1,000,000. Percy Booth, 4795 St. Catherine St. W., archt. T. Pringle & Son, Ltd., 4795 St. Catherine St. W., engrs.

▲ **N. B. Fredericton**—HOUSING UNITS—BA 12/20—Defence Construction (1951) Ltd., 56 Lyon St., Ottawa, Ont. 215 housing units, with water and sewer service connections, walks, drives and grading, Gagetown Army Camp, $1,600,000. Plans deposit $100. S. C. Ings, Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S., regional constr. engrs.

▲ **B. C., Vancouver**—SCHOOL—BA 12/29—Vancouver School Bd., 1595 W. 10 Ave., 2 story, rein.-con. secondary school, 49 and Killarney Sts. $1,250,000. Plans deposit $100. E. D. King, 1595 W. 10 Ave., archt. CD 12/18/53.

BUILDINGS—SLC

▲ **B. C., New Westminster**—HOSPITAL FOUNDATIONS, etc.—St. Mary's Hospital, Royal Ave., soon lets contract, foundations and substructure for 7 story rein.-con. 150-bed hospital $2,000,000. A. C. Smith & Assocs., 1531 W. Pender St., Vancouver, engrs. CD 8/8.

HEAVY CONSTRUCTION—LB & CA

▲ **ALBERTA and BRITISH COLUMBIA**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.,
Mannix Ltd., 604 Northern Hardware Bldg., Edmonton, Alta., CA, $2,649,628, grading, culverts and base course from Mile 21 to Mile 28.6, Yoho National Park, B. C. and Banff National Park, Atla. J. P. Carriere, c/o owner, engr. CD 12/1/43.

▲ **Kenney Constr. Co. Ltd.**, Drawer 380, Yarmouth, N. S., CA, $2,705,000. air terminal bldg., Gander Airport, GANDER, NEWFOUNDLAND, Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Oct. 25, awarded Nov. 18, Wiggs, Walford, Frost & Lindsay, 4350 Sherbrooke St. W., Montreal, Que., engrs. CD 11/10, under LB.
ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
Law Constr. Co., Ltd., 225 Sterling Rd., Toronto, Ont. CA $618,762, Contract 55-228, gran. base hot mix paving 4.74 mi. four-lane Hy. No. 401 from 0.55 mi. east of Sweaborg easterly also 2 cloverleafs Sweaborg. Awarded Nov. 25. CD 12/1, under LB.
▲ **Northern Constr. Co. & J. W. Stewart Ltd.**, 1304 Hornby St., Vancouver, B. C., CA, $4,877,700 (6 bidders) excavation of channel, Station 752-900 and constr. 19,000 ft. dike in Lachine Section of St. Lawrence Seaway, near Montreal, QUEBEC. St. Lawrence Seaway Auth., 1225 No. 2 Temporary Bldg., Ottawa, Ont. Bids Nov. 22, awarded Nov. 25. CD 11/2.

BUILDINGS—LB & CA

▲ **R. E. Stewart Constr. Corp.**, 862 Wellington St. S., Sherbrooke, Que., CA, $1,182,900. (5 bidders) four Junior Ranks' CLUB, Gagetown Army Camp, FREDERICTON N. B. Defense Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Bids Oct. 6, awarded Nov. 15. CD 9/26.
▲ **Frid Constr. Co. Ltd.**, James and Burlington Sts., Hamilton, Ont., CA, $3,000,000 (11 bidders) 6 story, bsmnt., 68x128 ft., rein.-con., structural steel, brick OFFICE, TORONTO, ONT. Traders Finance Corp. Ltd., 44 King St. W., Toronto, Ont. Bids Nov. 3, awarded Nov. 24. CD 10/19.
David Zunenshine, 4044 Nelligan St., Montreal, Que., Owner Builds, $720,000, 24 duplexes in HOUSING PROGRAM, St. Laurent suburban, MONTREAL, QUE. Harold Z. Kahn, 6999 Cote des Neiges Rd., Montreal, Que., archt.

ALASKA

HEAVY CONSTRUCTION—BA

▲† **Alaska**—RUNWAY, TAXIWAY—BA 12/28—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., runway and taxiway extens., hardstands and truck-fill stand, Elmendorf Air Force Base, Inv. 56-1. $2,500,000. CD 8/22.

HEAVY CONSTRUCTION—LB & CA

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, LB $3,911,534, est. $3,324,549, (6 bidders), 7 airmen's dormitory bldg. addn. to base rocket-storage bldg., steam tie line and rehabilitate 2 bldgs., Elmendorf Air Force Base, Inv. 56-2, ALASKA. U. S. 4735 E. Marginal May, Seattle 4, Wash. Bids Nov. 23. CD 10/27.
▲† **S. S. Mullen, Inc.**, 621 9 Ave. N., Seattle, Wash., CA $1,357,000. bulk-supply warehouse, flight-simulator and rocket storage bldgs., electrical distr. facilities, Ladd Air Force Base, Inv. 56-4. ALASKA. U. S. Eng., Anchorage, Alaska. Bids Nov. 17. CD 11/23, under LB.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **El Salvador**—BA About 1/17—The Comision Ejecutiva del Puerto de Acajutla (CEPA), Edificio Regalado, 2a Avenida Sur, No. 15, San Salvador, Acajutla Port constr. Proj. $5,000,000-$6,000,000. Deutsche Bergwerke & Huttenball, Geselwschatt, Germany, engrs. CD 9/28.

HEAVY CONSTRUCTION—LB & CA

† **Panama**—Bureau P. Rds., Dpt. Commerce 18 and F Sts., N.W., Wash. 25, D. C.,
Constructora del Pacifico, S. A., Panama, LB $736,037, (5 bidders), Proj. 13, approx. 14 mi. grading, drainage, crushed rock base course between David and Concepcion. Bids Nov. 25. CD 10/19.
† **Panama**—Bureau P. Rds., Dpt. Commerce, 18 and F Sts., N.W. Wash. 25, D. C.,
Framorco S. A., Panama, CA $977,000, Proj. 14, constr. 8 bridges, Inter-American Hy. program between Las Vueltas and Remedios. Bids Nov. 11, awarded Nov. 28. CD 11/16, under LB.

(Proposal Advertisements see pp. 159 to 161)

Edward Van Doorn, president,
Phoenix-Tempe Stone Co., Phoenix, Arizona

"Excess wear and bearing failures... eliminated with Union lubricants"

"Because we're particular about proper maintenance of our earth-moving machines, we've lubricated them with Union's industrial oils and greases for the past nine years. We consider them the finest we can get for our heavy equipment—DW20s, D8s, motor patrols and the like.

"Despite the fact that it's often necessary to highball equipment even under adverse conditions of desert dust and heat, our down-time for repairs and overhauls is at a minimum. Excess wear and bearing failures are problems we've eliminated with Union lubricants.

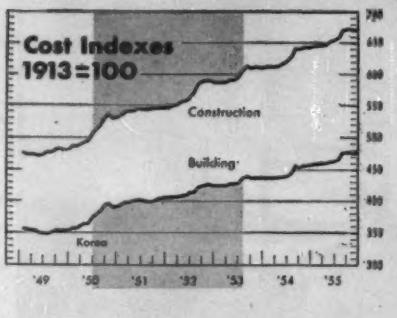
"In all my 45 years' experience as a contractor here in Arizona I've never had machines give better service than ours have on this 18-mile section of the Black Canyon Highway job where we've used Union Oil products exclusively."

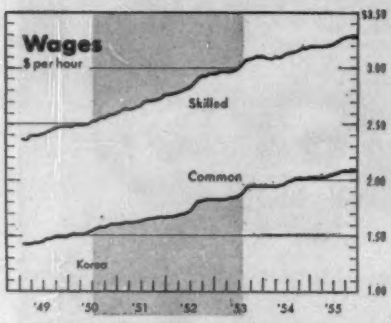
Like Ed Van Doorn, experienced contractors everywhere will tell you that Union's industrial oils and greases are *the finest* for today's high speed earth-moving machines. Ask your nearby Union Oil representative to start delivering them to your job, too.

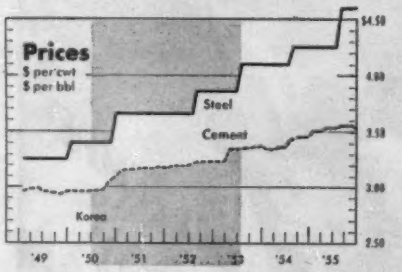
UNION OIL COMPANY 76
OF CALIFORNIA

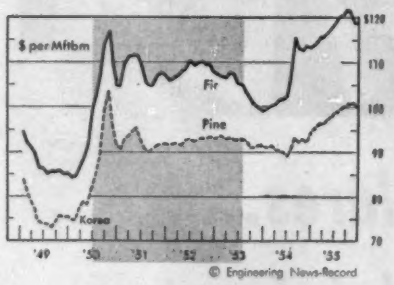
Los Angeles: Union Oil Bldg. • New York: 45 Rockefeller Plaza • Chicago: 1612 Bankers Bldg. • New Orleans: 644 National Bank of Commerce Bldg. Atlanta: 401 Atlanta National Bldg. • Kansas City, Mo.: 612 W. 47th St.

DECEMBER CONSTRUCTION SCOREBOARD









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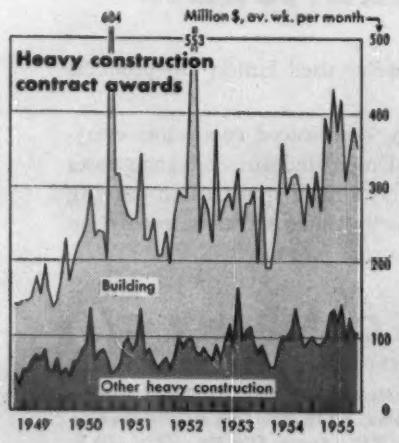

Million $, av. wk. per month
Heavy construction contract awards
Building
Other heavy construction
1949 1950 1951 1952 1953 1954 1955

ENR INDEXES (1913=100), 20-cities' average	1955 Dec.	% Change from last Month	% Change from last Year
Construction Cost	673.13	−0.01	+4.7
Building Cost	478.70	−0.1	+4.8
WAGE RATES, 20 cities' average			
Common	$2.097	+0.1	+3.9
Skilled (aver. 3 trades)	3.290	+0.03	+3.3
Bricklayers	3.546	+0.1	+2.6
Structural Ironworkers	3.276	0.0	+3.4
Carpenters	3.047	0.0	+3.8
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.542	−0.4	+2.3
Structural Steel, (3-mill aver.), per cwt	4.600	0.0	+8.2
Sand, per ton	2.397	+1.1	+4.1
Lumber, 2x4 Fir, per M. ft. bm	119.041	−0.6	+4.9
Lumber, 2x4 Pine, per M. ft. bm	100.666	−0.3	+6.7
Common brick, per M	34.880	0.0	+4.8
Ready-mixed concrete, per c. y	12.771	+0.9	+4.4
Structural Clay Tile, 3x12x12 per M	167.488	+0.9	+3.0

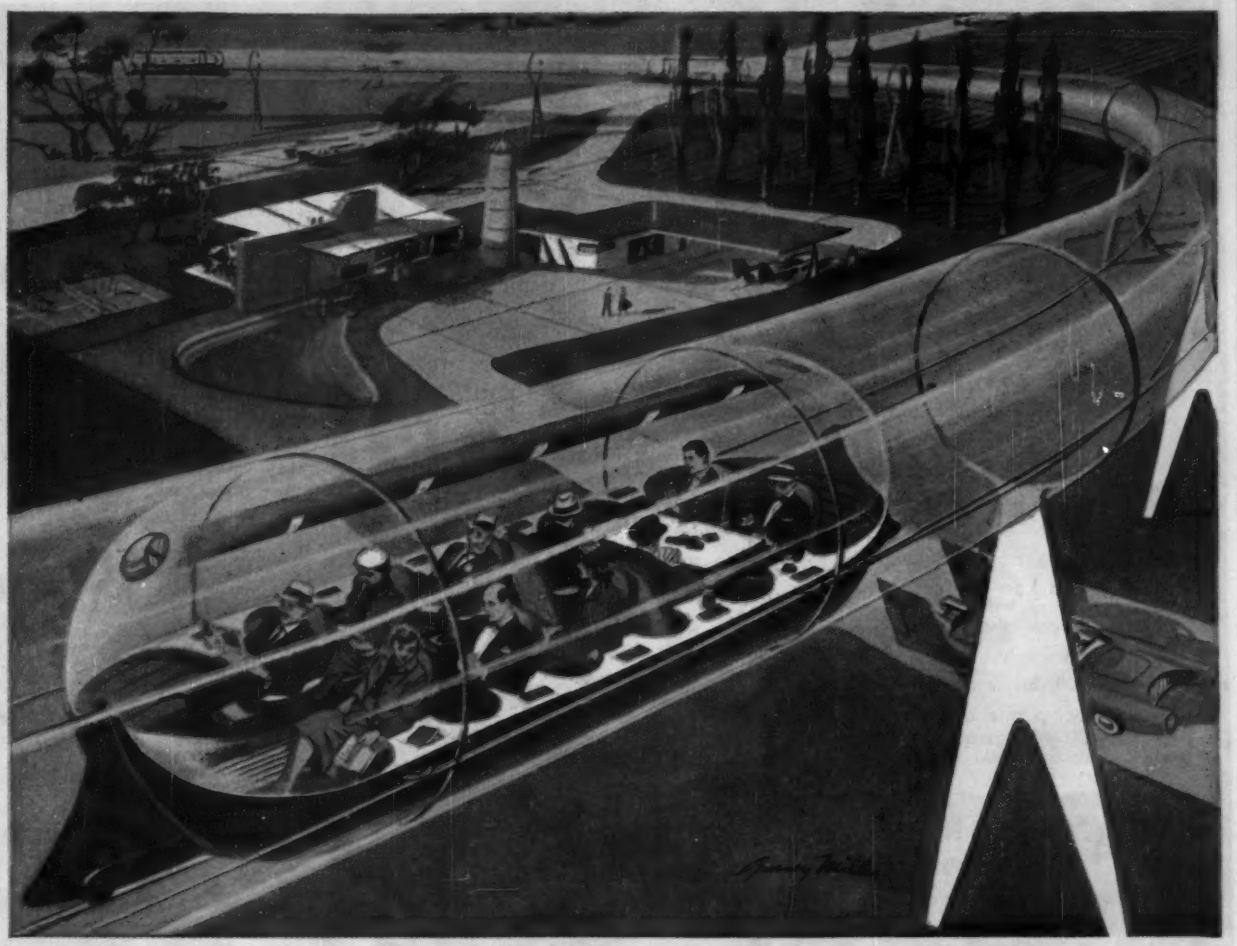
CONTRACTS AWARDED (Millions)	1955 Nov.	1955 11-Months	% Change from '54 Nov.	% Change from '54 11-Months
Total U. S. (ENR reported)	$1,369.1	$17,028.8	+12.7	+30.6
Private	964.8	10,750.8	+43.1	+45.9
Public	404.3	6,178.0	−25.2	+10.7
Federal	109.9	1,529.7	−16.9	+30.5
ENR Volume Index, '13=100	561	605	+ 7.5	+25.5
NEW CAPITAL (Millions)				
Total	1,319.8	12,255.6	+106.1	+16.6
State & Municipal Bond Sales	884.9	4,480.4	+ 53.4	−12.4
Corporate Security Sales	427.1	3,335.1	+673.7	+33.4
Federal (non-federal work)	7.8	975.8	− 4.9	+24.7
Federal (federal work)	.....	3,464.3	.....	+64.5

MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1955 Sept. (S) Oct. (O)	9-Mos. 10-Mos.	% Change from '54 Mo.	% Change from '54 Yr.-Cum.
Cement, bbls. Bu. of Mines	29.523(S)	225.376(9)	+1.7	+ 8.4
Fabr. Struct. Steel, tons AISC	.284(O)	2.475(10)	+10.0	− 7.8
Lumber, mil. ft. bm., NLMA	3.468(S)	30.373(9)	+7.1	+10.2
Lumber Prod., mil. ft. bm., NLMA	3.542(S)	29.658(9)	+8.0	+ 6.9
Contract Const. Employ., BLS	2.691(O)	2.509(10)†	+1.5	− 1.0

† Average

ENR CONSTRUCTION & BUILDING COST INDEXES IN 22 CITIES (1913=100)

	Construction Cost Dec. '55	Construction Cost Sept. '55	Building Cost Dec. '55	Building Cost Sept. '55		Construction Cost Dec. '55	Construction Cost Sept. '55	Building Cost Dec. '55	Building Cost Sept. '55
Atlanta	495	492	419	417	Los Angeles	708	705	479	483
Baltimore	592	595	472	472	Minneapolis	720	720	502	502
Birmingham	533	519	442	434	Montreal	550	532	427	412
Boston	709	709	487	488	New Orleans	545	545	449	449
Chicago	762	752	486	488	New York	791	794	545	548
Cincinnati	671	673	466	467	Philadelphia	721	721	535	533
Cleveland	785	785	489	489	Pittsburgh	695	690	506	498
Dallas	510	507	426	422	St. Louis	727	728	502	503
Denver	653	656	483	485	San Francisco	684	690	463	469
Detroit	772	776	498	503	Seattle	685	693	428	436
Kansas City	703	703	496	496	Toronto	558	552	446	449



"TRAVEL CAPSULES" . . . air-conditioned, plastic-enclosed, propelled at high speeds along elevated tubeways . . . immune to weather, traffic delay, mechanical breakdown. Science is exploring its possibilities now.

100 years from now...

WE MAY TRAVEL BY VACUUM TUBE!

Many fantastic developments...today only dreams and lines on an engineer's blueprint...may become the commonplace of the future.

But in that world to come, one highly useful servant will continue its public service much as it does today. Cast iron pipe laid today will still carry our gas and water.

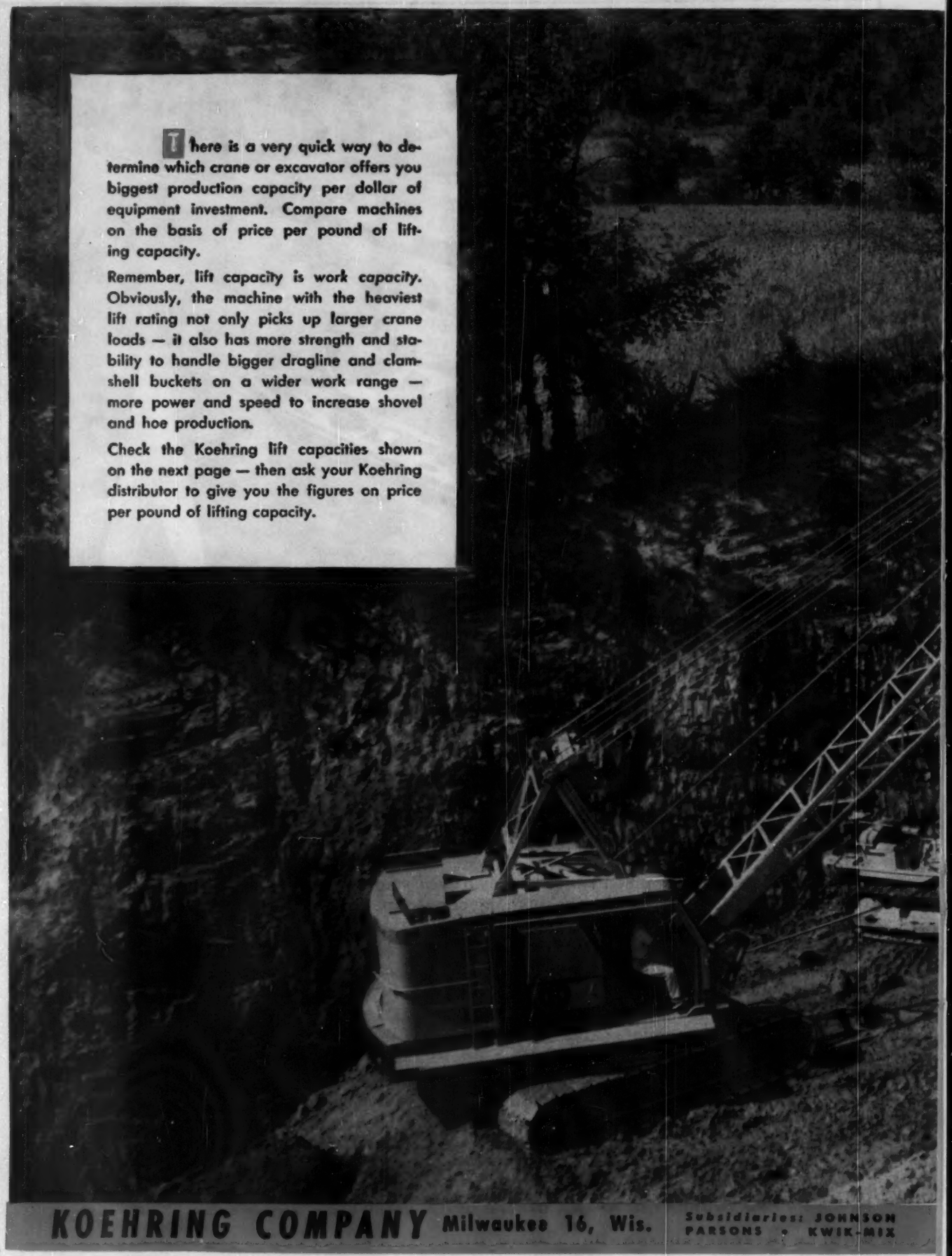
Records show that over sixty American cities are served by cast iron gas and water mains laid in the ground over a hundred years ago! And today, U. S. Pipe, centrifugally cast and quality-controlled, is even more serviceable.

U. S. Pipe is proud to be one of the leaders in a forward-looking industry whose service to the world is measured in centuries.

U.S.
cast iron
PIPE
FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE
CAST IRON

U. S. PIPE AND FOUNDRY COMPANY, General Office: Birmingham, Alabama

A WHOLLY INTEGRATED PRODUCER FROM MINES AND BLAST FURNACES TO FINISHED PIPE.



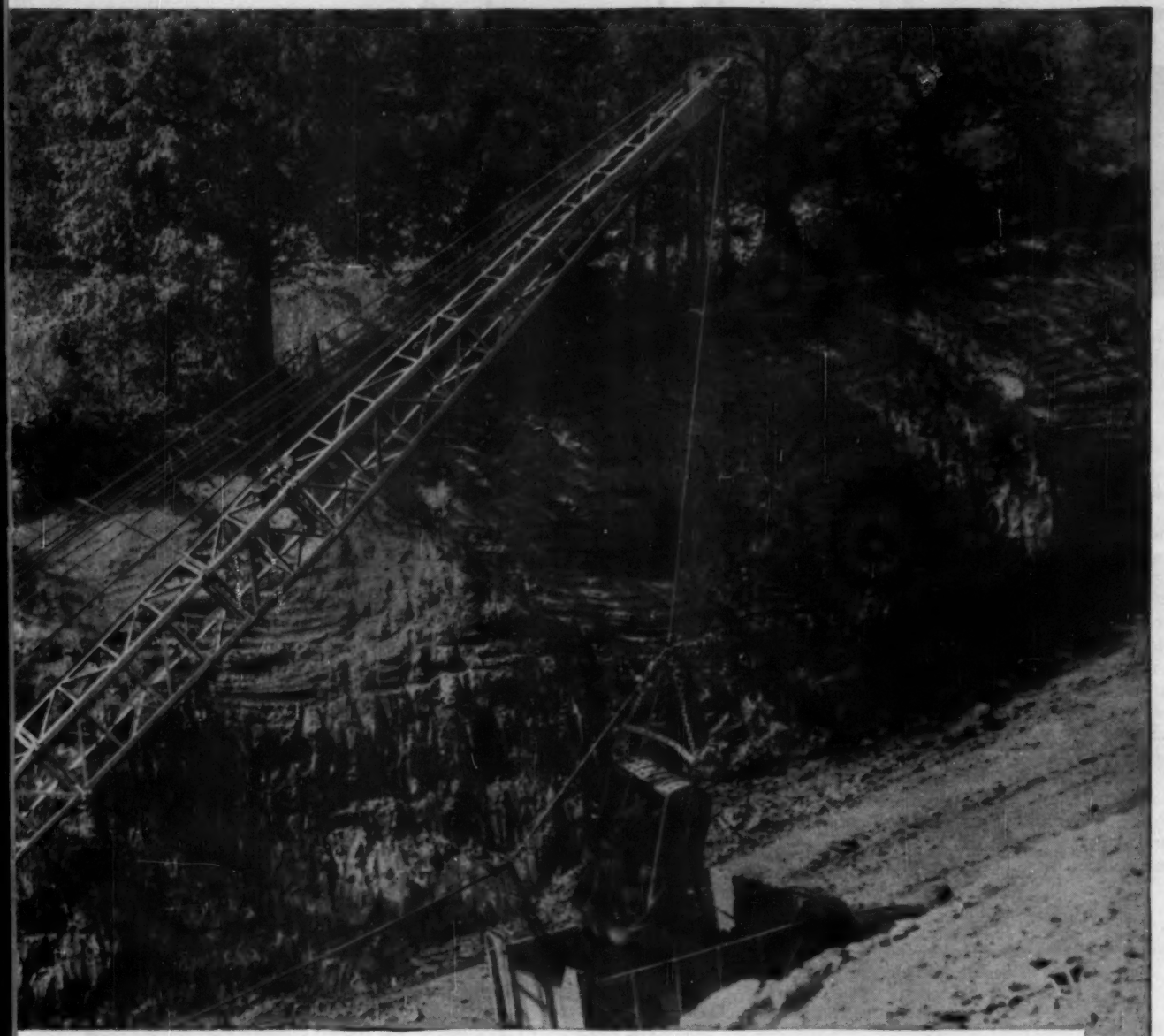
There is a very quick way to determine which crane or excavator offers you biggest production capacity per dollar of equipment investment. Compare machines on the basis of price per pound of lifting capacity.

Remember, lift capacity is *work capacity*. Obviously, the machine with the heaviest lift rating not only picks up larger crane loads — it also has more strength and stability to handle bigger dragline and clamshell buckets on a wider work range — more power and speed to increase shovel and hoe production.

Check the Koehring lift capacities shown on the next page — then ask your Koehring distributor to give you the figures on price per pound of lifting capacity.

KOEHRING COMPANY Milwaukee 16, Wis.

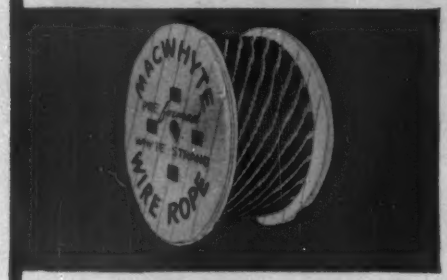
Subsidiaries: JOHNSON • PARSONS • KWIK-MIX



Check price per pound of lifting capacity

KOEHRING MODEL	SIZE DIPPER	KOEHRING LIFT CAPACITIES (Crawler ratings based on 75% of tipping load. Rubber-tired machines — 85% of tipping load)		PRICE PER POUND OF LIFT CAPACITY*
205 CRAWLER	½-Yd.	20,000 lbs.	30-foot boom at 10-ft. radius	?
205 ON RUBBER	½-Yd.	30,000 lbs.	25-foot boom at 12-ft. radius	?
304 CRAWLER	¾-Yd.	27,800 lbs.	35-foot boom at 12-ft. radius	?
304 ON RUBBER	¾-Yd.	50,000 lbs.	30-foot boom at 10-ft. radius	?
405 CRAWLER	1-Yd.	40,000 lbs.	40-foot boom at 12-ft. radius	?
605 CRAWLER	1½-Yds.	72,300 lbs.	50-foot boom at 12-ft. radius	?
1005 CRAWLER	2½-Yds.	159,000 lbs.	50-foot boom at 12-ft. radius	?

*figures available on request—ask your Koehring distributor for them.



Prompt Service

SLINGS · WIRE ROPE · ASSEMBLIES

Your wire rope needs, whether they be for Round-Braided Slings, Cable Assemblies, or Wire Rope, are given prompt service by Macwhyte Company distributors.

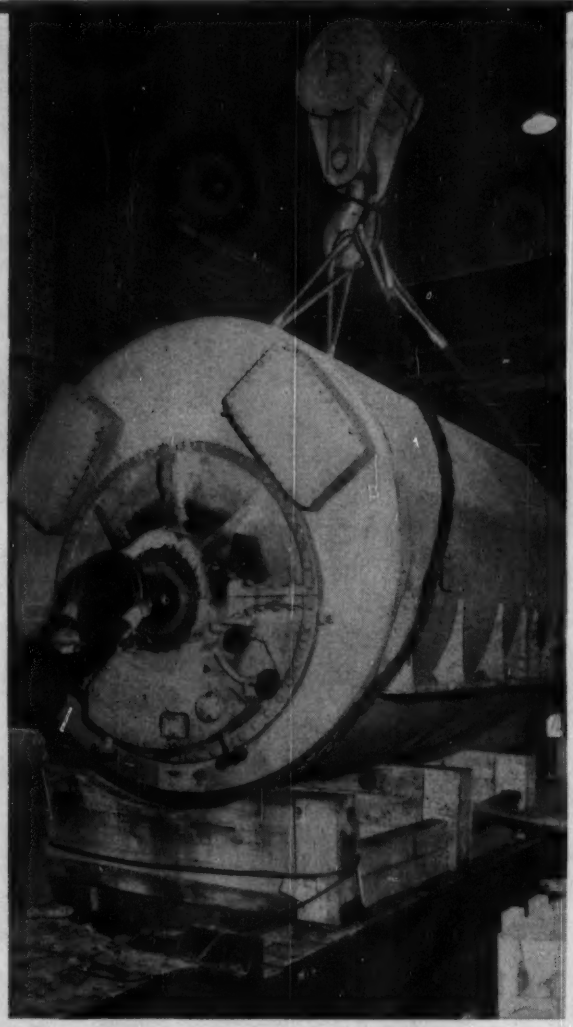
Macwhyte manufactures a wide variety of sizes and types to provide materials best suited to your needs.

MACWHYTE

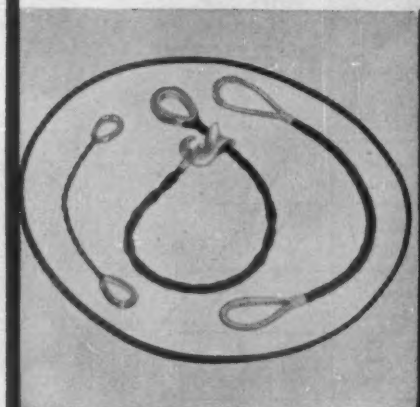
SLINGS • WIRE ROPE • ASSEMBLIES

Macwhyte Company, 2930 Fourteenth Avenue
Kenosha, Wisconsin

Mill depots: New York 4, 35 Water Street
Pittsburgh 19, 704 Second Avenue
Chicago 6, 228 So. Desplaines Street
St. Paul 14, 2356 Hampden Avenue
Ft. Worth 1, P. O. Box 605
Portland 9, 1603 N. W. 14th Avenue
Seattle 4, 87 Holgate Street
San Francisco 7, 188 King Street
Los Angeles 21, 2035 Sacramento

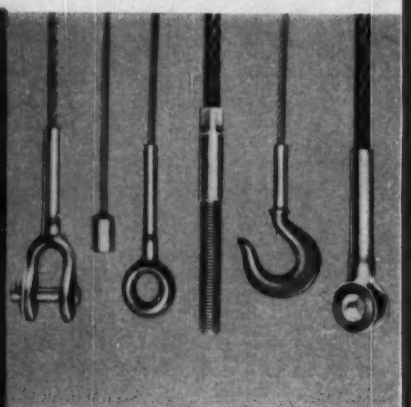


ROUND-BRAIDED SLINGS: Two Macwhyte ATLAS Round-Braided Slings handling 125-ton generator unit. These are Type No. 1 Slings made of alternate left and right lay wire rope, braided for light weight, maximum flexibility, and safety.



SLINGS: Macwhyte makes a wide range of sizes and types of Braided and Single-Part wire rope slings. Custom designs are made to meet special needs. For information, ask for Catalog S-8.

WIRE ROPE: There is a right rope for each equipment need. Catalog G-16 lists all classifications and sizes, also included is general information on handling and use of wire rope.



ASSEMBLIES: Macwhyte "Safe-Lock" Wire Rope Assemblies are made in a wide range of sizes, with fittings permanently attached to one or both ends. Many standard types are listed in Catalog No. 5201.

Private Work Keeps the Boom Rolling Along

Led by industrial and commercial awards, volume reaches new November high. Year-to-date total way ahead of '52

Construction contracts reported to ENR last month set a November record of almost $1.4 billion, though there was a seasonal decline of 10% from the October total.

This brings contract awards for the 11 months of this year to $17 billion, already far ahead of the $14.5 billion reported for the full year of 1955, and the record $15.7 billion of 1952.

• **Private work**—Industrial and commercial contracts provided the major impetus in November, going far to offset the tide of seasonal declines noted in other categories, particularly public works. At $298 million, industrial building was ahead of October. In fact, November was the second best month of this year for industrial building—far ahead of the same month last year. Commercial awards were $155 million, 29% ahead of October and the third best month of the year.

But mass housing continues the main support of the construction boom. Awards averaged nearly $100 million a week. Though 27% off from October's very high volume, November awards were $393 million, which puts them 4% ahead of last year. The year-to-date volume is $5.7 billion for housing. That is a whacking 47% gain over the same period last year.

Other classes of private work are also running well ahead of 1954, with the minor exception of bridges. Industrial building is up 55%, and commercial is up 22%. Unclassified is up 68%.

• **Public work**—Public contracts hit their low so far this year in November with a total of $404 million. In fact, this volume was the lowest since February 1954. The main reasons: a drop in highway awards to $118 million from $159 million last month; and a drop in the non-residential building total from $151 million down to $86 million.

Four classes of public works are running below 1954 for the 11-month period. Buildings other than housing are down 3%. Bridges are down 2%, as are sewerage awards. Public housing is down 0.4%. But the following classes are well above last year; earthwork & waterways, 71%; unclassified, 29%; highways, 12%; waterworks, 11%.

As a whole, public work is 11% above last year, though the margin has been narrowing.

• **Regions**—Contract volume increased in most regions. It was up in the Far West, New England, the Mid-West and the South. It declined sharply in the Mid-Atlantic, which up to now had led all other regions in percentage of gain over last year. It was also down slightly in the West-of-Mississippi area.

The Mid-West section now leads all regions, with a gain of 44% over last year.

Court Gives Green Light To 113-Mile Michigan 'Pike

Michigan's Supreme Court last week upheld constitutionality of the state's 1953 toll-road act, clearing the way for early financing of the 113-mile North-South Turnpike.

The route, whose financing is estimated at $194 million, would run from the Monroe Expressway near Flat Rock northward through Dearborn, past Detroit, Pontiac, and Flint, to end near Saginaw. Feasibility studies have already been made by J. E. Greiner & Co. and Coverdale & Colpitts.

A syndicate of 177 investment banking firms headed by Blyth & Co., of New York, and First of Michigan Corp., Detroit, has been formed to bid on the bond issue.

(*B&F continued on page 150*)

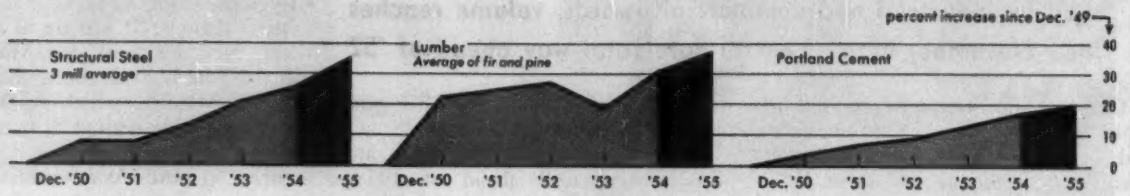
ENGINEERING CONSTRUCTION CONTRACTS—NOVEMBER 1955

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

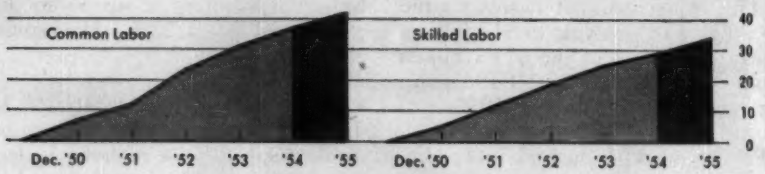
Four Weeks—Thousands of Dollars (000 Omitted)

	November, 1955							U. S. Cumulative Eleven Months		% Change	Canada November
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1955	1954	'54 to '55	1955
Public Works											
Waterworks	55	1,432	740	1,336	5,993	2,138	11,694	243,012	219,619	+11	1,185
Sewerage	1,004	4,527	4,146	3,657	4,093	1,310	18,737	351,469	357,783	− 2	959
Bridges	454	3,975	3,125	6,686	16,034	5,481	35,755	441,102	449,340	− 2	4,468
Earthwork and waterways	633	2,174	11,767	8,435	6,621	1,597	31,227	493,196	287,971	+71	4,459
Streets and roads	13,700	11,777	24,054	16,787	32,214	19,584	118,125	1,939,348	1,729,477	+12	5,578
Public buildings, residential	550	6,587	2,161	2,544	387	2,498	14,727	239,612	240,838	− 0.4	9,704
Other public buildings	8,704	15,149	6,853	16,762	21,073	17,761	86,302	1,548,836	1,592,736	− 3	13,570
Unclassified	24,373	18,560	10,127	4,663	14,717	15,333	87,773	1,621,459	794,575	+29	11,841
Total public	49,482	64,181	62,973	60,870	101,132	65,702	404,340	6,278,034	5,672,339	+11	51,764
Federal government (included in above classifications)	25,129	12,227	22,367	13,548	18,828	17,861	109,960	1,529,702	1,171,651	+31	19,158
Private											
Bridges	.....	306	.....	.....	.....	.....	306	2,375	10,388	−77	.....
Industrial buildings	9,357	40,014	89,339	61,765	73,200	24,161	297,836	2,640,765	1,701,595	+55	58,658
Mass housing	7,265	109,420	4,660	135,575	119,160	17,287	393,367	5,698,650	3,868,953	+47	126,590
Commercial buildings	4,133	21,522	8,989	82,882	17,275	20,522	155,323	1,548,463	1,272,149	+22	3,988
Unclassified	675	535	304	723	14,042	101,676	117,955	860,514	513,123	+68	19,610
Total private	21,430	171,797	103,292	280,945	223,677	163,646	964,787	10,750,767	7,366,208	+46	208,846
Total Engineering Construction:											
November, 1955—4 weeks	70,912	235,978	166,265	341,815	324,809	229,348	1,369,127	.....	.....	.....	260,610
October, 1955—4 weeks	62,825	426,851	114,887	312,808	385,267	222,865	1,525,503	.....	.....	.....	174,891
November, 1954—4 weeks	46,941	349,408	143,521	225,377	310,323	139,012	1,214,582	.....	.....	.....	159,262
Eleven Months—1955	810,552	4,617,575	1,821,800	3,763,748	4,006,779	2,008,347	.....	17,028,801	.....	+31	1,702,986
Eleven Months—1954	663,457	3,380,309	1,776,649	2,612,546	3,059,489	1,546,097	.....	.....	13,038,547	.....	1,544,205
% Change '54 to '55	+22	+37	+3	+44	+31	+30	.....	.....	.....	.....	+14

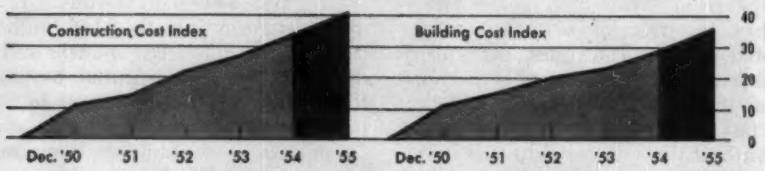
Climbing Materials Prices, Particularly Steel . . .



. . . and Labor's Wage Demands . . .



. . . Sparked Another Big Cost Rise in '55



Construction Costs Level After Earlier Rise

Though construction costs rose substantially earlier this year (charts), ENR's cost indexes remain virtually unchanged for December from the previous month's level. A few scattered wage increases and higher lumber prices in two cities are offset by lumber declines in five cities and a drop in cement prices in Baltimore.

The December Construction Cost Index is 673.13, based on 1913 = 100, practically the same as November. The Building Cost Index dips a slight 0.1% this month to 478.70, also based on 1913.

The drop of 27 cents a bbl for cement at Baltimore is caused by a reduction in rail freight. The rail carriers are seeking to win back business they lost to truckers. Wage increases are limited to five cents more per hour for common labor in Birmingham, and for Cincinnati bricklayers.

Costs have now been stable for four months. Both indexes are about one point below their record highs set in October. But this won't last long. In January cement prices are set to rise 15 cents to 25 cents per bbl at many mills (below). Price rises in steel have already been announced and more are impending. From several of ENR's 20 cities come reports of probable price rises for a wide variety of other materials, ranging from aggregates and road paving materials to insulation and plaster.

Even if lumber prices should continue to soften—the decline during the past couple of months is partly due to a seasonal slackening in demand—prices of their key materials will probably move up. The new effect will be rises in the ENR indexes.

Four Cement Companies Up First-Quarter Prices

Several more cement producers have followed Universal Atlas Cement Co. in announcing price boosts in cement for the first quarter of 1956. But most did not match the 25-cents a bbl increase made by Universal.

Alpha Portland Cement Co. boosted prices 25 cents in seven plants, 15 cents at another. Lehigh Portland Cement Co. boosted prices 25 cents at Birmingham, Ala., 15 cents at 10 other mills.

Lone Star Cement Co. boosted prices 15 cents per bbl at two of its mills.

Medusa Portland Cement Co. has upped them 15 cents at one distributing plant and 20 cents at a mill.

Other companies are expected to follow.

Investor Group Buys Into Thompson-Starrett Co.

It looks like another group of financiers has decided to follow the example set by the Louis Wolfson group in its acquisition and expansion of Merritt-Chapman & Scott Corp.

A distinguished group of investors led by Alfred A. Strelsin, New York financier and construction executive, has acquired about 556,000 shares of the 1,400,000 outstanding shares of Thompson-Starrett Co., Inc., of Chicago. T-S is an engineering and construction firm. But the word is that the firm will engage in "an intensified program and expansion and diversification" by acquiring other companies.

The Strelsin group has just bought 200,000 shares from Jennis Doroshaw, a New York financier who retains about 216,000 shares and who plans to work with Strelsin. The group also bought additional T-S stock on its own.

Strelsin, 57, has other wide interests, including chemicals, electronics, aircraft, and cosmetics. Among his associates are Donald M. Nelson, former top Sears Roebuck executive and wartime head of the War Production Board, and Gen. Hugh Casey, a retired engineer officer who is an executive of Schenley Industries.

Pension Funds Buy Mortgages In Big N. Y. Apartment Project

Although their reserves have been building up rapidly, pension funds have not yet started buying mortgages in volume. Thus it is significant that five large retirement funds contributed about $15 million of the $42-million financing of a group of apartment

Mrs. Murray Started Something!

Mrs. Murray started it all. One day at the Women's Club meeting, she suggested a city beautification drive. The "girls" agreed unanimously and began scouring the city, making notes on everything that needed improving. One item that showed up on everyone's suggestion list was, "do something about those unsightly old lighting poles on Main Street."

Admittedly, the ladies had a point. So we did the smartest thing we could do about those bulky, old-fashioned standards. We replaced them all with USS National Tubular Steel Poles.

What a change! Main Street looks new, up-to-date, proud of itself. And those graceful steel poles are functional as well as attractive. Their slimness keeps them from being traffic hazards. And they are strong enough to support the tightest trolley wires, although they needn't be spaced nearly as close together as conventional standards. One of the most practical advantages of National Tubular Steel Poles is, of course, upkeep. It's practically nil—just an occasional coat of paint and the poles look as good as new.

Civic pride is a wonderful thing. It certainly did a lot for our town—thanks to Mrs. Murray.

NATIONAL TUBE DIVISION
UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
PACIFIC COAST DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS NATIONAL *Tubular* STEEL POLES

UNITED STATES STEEL

buildings started last week in the Borough of Queens in New York City.

Separate mortgages on individual buildings in the project were taken by General Motors Retirement Fund, Ford Motor Co. Trust Fund, Standard Oil of Indiana Trust Fund, Chase Manhattan Bank Employees Fund, and United Gas Corp. Employees Retirement Fund. Chase Manhattan Bank of New York made this investment as trustee for these funds.

Court Clears Last Obstacle To Huge Illinois Toll Issue

What is apparently the last obstacle to construction of the king-sized Illinois toll road system was removed last week. The State Supreme Court ruled that the State Toll Road Commission was within its powers when it sold $415 million in bonds for the three northern routes of the proposed Illinois toll road system as a single bond issue.

The bonds have already been sold, in anticipation of this ruling. They can now be signed by the commission and delivered to the investment banking syndicate which bought them in October.

Independent Fabricator Sues 10 Steel Companies

Claiming that major steel producers are trying to squeeze independent fabricators out of business, Independent Iron Works, Inc., of Oakland, Calif., has filed suit against 10 major companies.

Independent says there are only three suppliers in its area—Kaiser, Bethlehem, and U. S. Steel—and that only two of these can supply large beams and plates. With these firms in the fabricating business, it charges, it is getting harder for independents to win competitive bids.

A similar suit brought by Independent last year against U. S. Steel and Bethlehem was settled for $350,000 according to counsel for Independent.

Business Briefs . . .

• **Capital spending** should increase 50% over the next 10 years, according to a project by the Machinery Allied Products Institute.

• **Morrison-Knudsen Co., Inc.,** announced a big gain in profits for the first nine months of this year. Profits were $4,820,000 compared with $2,784,000 in the same 1954 period. The backlog of uncompleted construction in the U. S. at the end of September was $229 million, compared with $127 million a year before. The foreign backlog was $151 million, or a record total backlog of $380 million.

• **U. S. Steel Co.,** according to unofficial reports, plans to spend about $500 million for expansion next year. Bethlehem Steel Co. is also said to have plans for expansion. Most other steelmakers have already reported expansion plans for 1956.

• **Kaiser Aluminum & Chemical Corp.** plans a $280-million expansion program. There will be a $120-million reduction plant at Ravenswood, West Va., and a $60-million alumina plant above New Orleans, plus $100 million for chemical and other facilities.

• **Prefab steel buildings** will be produced by a subsidiary of Armco Steel Corp. at a $1.5-million plant to be built at Middletown, Ohio. The subsidiary is Armco Drainage & Metal Products, Inc.

• **$125-million steam plant** is planned by Ohio Power Co., part of the American Gas & Electric system. The 1,000,000 kw plant will be located near Clarington, Ohio, on the Ohio River. Construction is expected to start within two or three years. Another 1,000,000 kw plant is proposed near Ironton, Ohio.

• **Delaware Power & Light Co.** plans to spend $73 million for construction during the 1955-57 period.

• **Ford Motor Co.** plans a new 1,200,000 sq-ft plant for truck parts near Columbus, Ohio. Construction on the new unit will start soon if rezoning is approved, with completion scheduled for mid-1957.

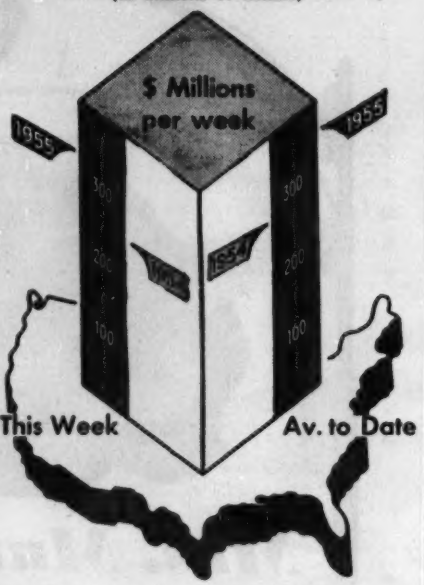
• **Chrysler Corp.** has changed its mind about locating its $85-million stamping plant at Macedonia, Ohio. Engineering studies showed the site was unsuitable. Now Chrysler is switching to a site at Twinsburg, Ohio, midway between Akron and Cleveland.

• **Prudential Insurance Co.,** which since the war has put up a number of regional homes around the U. S., now plans to spend $20 million redeveloping its main office in Newark, N. J.

• **Clay-products plant,** costing about $1.2 million, will be started next spring near Regina, Sask., by Western Clay Products, Inc. The plant will make sewer pipe, sewer lining, vitrified tile and other products.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

(millions of dollars)	This Week	Cumulative 49 wks 1955	1954	% chge
By Ownership				
Federal	$28.2	$1,572.3	$1,212.2	+30
State and municipal	163.1	5,002.5	4,668.8	+7
Total public	191.3	6,574.8	5,881.0	+12
Total private	139.0	11,063.1	7,718.6	+43
U. S. Total	$330.3	$17,637.9	$13,599.6	+30
By type of work				
Waterworks	$42.6	$290.3	$226.3	+28
Sewerage	11.8	367.9	367.5	+0.1
Bridges	17.7	471.5	476.6	−1
Highways	87.7	2,006.8	1,795.7	+12
Earthwork, waterways	15.8	517.1	299.8	+72
Buildings:				
Public, excl. housing	38.9	1,627.7	1,650.4	−1
Public housg.	2.8	243.0	244.3	−1
Private housg.	100.7	5,897.1	4,049.1	+46
Commercial	7.4	1,577.1	1,356.5	+16
Industrial	20.8	2,708.8	1,782.3	+52
Unclassified	34.1	1,930.6	1,351.1	+43
U. S. Total	$330.3	$17,637.9	$13,599.6	+30

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)	Week of Dec. 1	Cumulative 48 wks 1955	% Chge '54-'55
Corporate securities	$81.2	$3,416.4	+36
State and municipal:			
All except housing	110.7	4,478.1	−11
Housing	...	73.0	+2
Federal loans	...	122.3	+11
Federal aid	...	853.5	+27
Total nonfederal	$192.0	$8,983.3	+6
Federal appropriations:			
In U. S.	...	$3,379.7	+63
Outside U. S.	...	84.6	+155
Total new capital	$192.0	$12,447.6	+18

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	12/1†	673.13	323.57	141.11
	11/3†	673.20	323.61	141.13
Building cost	12/1†	478.70	258.77	136.06
	11/3†	479.30	259.10	136.25
Volume	Nov.	561	228	162
	Oct.	628	255	182

† Official Indexes for Nov. & Dec.

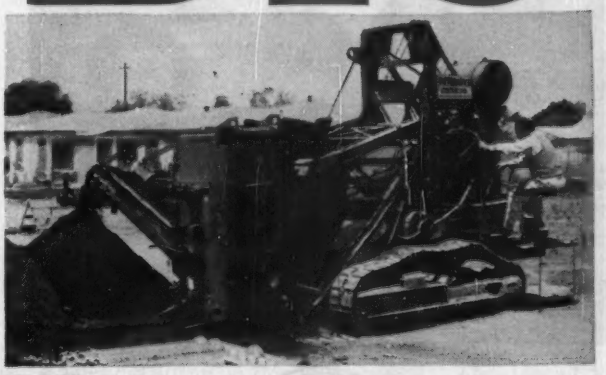
DIG with the Model 705B to 4' deep up to 10½" wide. For toughest digging conditions. Travels at 15 m.p.h. Fluid drive. Vertical boom. Hydra-Crowd for infinite range of digging speeds between 0' and 16' per minute, independent of bucket line speed.

DIG

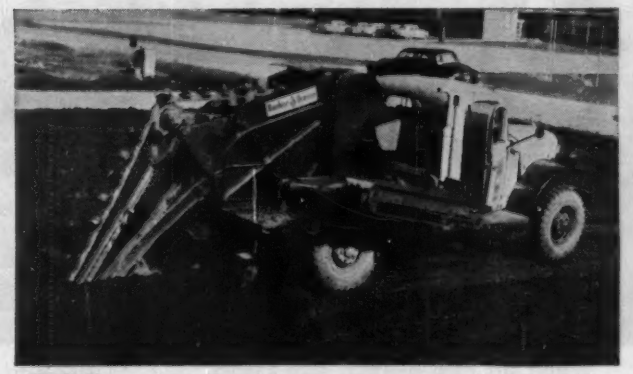
DIG at the lowest cost per foot of trench with a ditcher that's right for the job.

DIG in frozen ground, coral rock, asphalt pavement, virtually any kind of material.

DIG with a ditcher that saves you money on both manpower and maintenance.



DIG with the crawler-mounted Model 44C. For every kind of digging, to 8'-3" deep up to 24" wide. Vertical boom with power hoist. Self cleaning buckets. Automatic overload release trips on overload, automatically resets. Adjustable spoil conveyor.



DIG with the Model 711 to 5' deep up to 18" wide. For fast job to job travel, 45 m.p.h. road speed. Hydra-Crowd for infinite range of digging speeds between 0' and 16' per minute independent of bucket line speed. Operated from cab or ground.

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descriptive literature . . . sound movies

cost studies . . . nearby job inspection . . . plant layouts

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CONVEYORS LOADERS DITCHERS ASPHALT PAVING EQUIPMENT

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling

on Alabama Pipe Line Project

Midwestern Constructors, Inc. of Tulsa, Oklahoma, are laying 14.45 miles of 30" pipe and 53.55 miles of 36" pipe for the Transcontinental Gas Pipe Line Corp., from the Mississippi-Alabama state line to a point near Uniontown, Alabama. M. T. Wilhite, General Superintendent, John Work, Field Superintendent and their staff chose Gulf quality lubricants and clean burning fuels, along with that Good Gulf Service, to help them complete the project ahead of schedule.

IT'S a faster, smoother job when equipment delivers top performance — and the use of quality petroleum products is one of the best guarantees of this kind of performance.

That's why hundreds of leading contractors, including Midwestern Constructors, select Gulf as their supplier. They have found that Gulf quality lubricants and fuels provide an extra margin of protection against mechanical delays . . . and they appreciate Gulf's prompt delivery service and helpful petroleum engineering counsel.

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Gentlemen:

Please send me a copy of your new brochure, "Gulf and Your Business."

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Company.....

Title.....

Address.....

George Meany winds up AFL convention with faith in the future as . . .

Labor Tackles the Job of Unity

Last week, unity of American labor proved to be a bigger thing than any individual or any union.

Throughout the conventions that lead up to the overwhelming approval of the merger resolution, the dominant principle was this: Let us merge first and work out our problems later.

It was on this basis that the AFL Building and Construction Trades Department conducted its own convention. Successfully holding the line on unity, the building trades took two significant steps:

• In order to further minimize costly and destructive strife within their own ranks, they made their plan for the settlement of jurisdictional disputes within the building industry binding on all affiliates of the department.

• They did not air on the convention floor existing objections to the merger constitution (ENR, Dec. 1, p. 21). Instead, they recommended formation of a permanent committee from the new Industrial Organizations and Building Trades Departments to develop rules of procedure for adjustment of differences, including protection of present jurisdictions and the right of AFL unions to organize maintenance workers in industrial plants.

In taking this course of action, the building trades were following the master plan. Although the opportunity of placing on record individual objections to the merger existed, the merger resolution was presented on a "take or leave it" basis. Pre-merger constitutional amendments were not feasible. As George Meany said, those were matters of policy best dealt with by the new federation.

• **The task ahead.** Despite the tremendous determination to give the merger a chance to prove its effectiveness, doubts about how the merger would affect individual interests were numerous. The racial question was raised in both major conventions; the CIO Transport Workers' Union vigorously attacked the "liquidation of the CIO"; the AFL Typographical Union condemned the new constitution for its inadequate guarantee of union autonomy. One AFL delegate —a painter from New Jersey—and two CIO Industrial Councils rose in protest. But the bulk of the bickering was done behind the scenes and the real decisions were left to the new organization.

The difficult task of giving life and meaning to the written language of the new constitution has already been undertaken by the AFL-CIO, meeting in New York this week for its first convention. Among the ticklish problems that have been raised are: admission of independent unions to the new federation; the right of individual unions, such as the teamsters, to enter into alliances with unions previously expelled from either federation; and rules for membership and the balance of power in each of the six new departments.

• **Autonomy.** One of the most crucial questions of all has been raised by the lathers union. Going to the heart of the merger itself, the question is whether the new constitution will preserve the automony of each affiliate and thus guarantee it freedom from compulsion.

Behind it lies the long fight which members of the lathers union, only 20,000 strong, has had with the National Joint Board for the Settlement of Jurisdictional Disputes. Ever since the union withdrew from the settlement plan last March, it has claimed that the board has no right to make jurisdictional decisions affecting its work and has vigorously protested the 38 adverse decisions rendered against it since its withdrawal.

Over its objection, a resolution was passed at the building trades convention making the settlement plan "binding on all affiliates." It was adopted as a means of molding the department into a "united body" and as an effort to improve the department's own relations with the public.

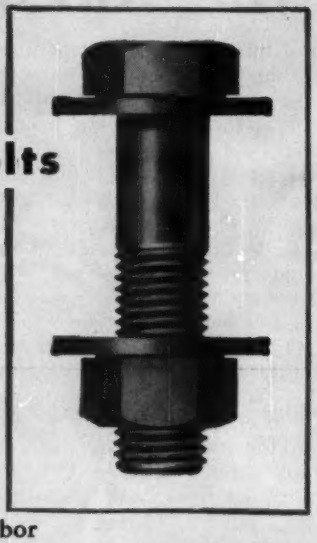
President emeritus McSorley attacked the resolution because of its compulsory nature and Lloyd Mashburn, union president and one-time acting U. S. Secretary of Labor, argued that mandatory adherence to such a plan transgresses the principle of autonomy.

Eventually the Executive Council of the new federation will have to rule on the merits of the lathers' objections. Giving added significance to the seriousness of the issue which McSorley raised, is McSorley's re-election as first vice president and Executive Council member of the Building Trades Department (see chart).

(*Continued on page 156*)

High & Mighty

Lamson High-Strength Structural Steel Bolts



High in strength and mighty in savings explains in a nutshell the growing popularity of Lamson High-Strength structural steel bolts.

The holding strength of these bolts cannot be matched by *any other fastening method*. They're stronger statically, as well as from a fatigue standpoint. Yet installation is faster, it requires no scaffolding and much less equipment than old-fashioned riveting.

From the money-saving standpoint, some erectors estimate it costs 25c in labor to install a 25c High-Strength bolt; whereas it costs 75c in labor to install a 5c rivet.

Small wonder that railroads are turning to High-Strength bolting for steel structural erection. It's a dramatic new way to cut building and maintenance costs and get a better, longer-lasting structural job!

The LAMSON & SESSIONS Co.
1971 West 85th St., Cleveland 2, Ohio
Plants at Cleveland and Kent, Ohio
Birmingham • Chicago

Lamson & Sessions

Large Bolts • Cotters
Square and Hex Nuts • Weather-tight Bolts • Bent Bolts
Phillips and Clutch Head Screws • Lock Nuts • Cap Screws

DICK GRAY will continue to guide the building trades down the long road to unity and harmony.

• **Building trades look forward**—Despite this dissension, the building trades convention, which preceded the big AFL convention, was officially dedicated to a search for harmony both within the department and within the construction industry.

In his opening remarks, Dick Gray urged the building trades to consider the problems of employers and the public interest, as well as their own responsibilities, in conducting wage negotiations. Ill-considered and inconsequential strikes and work stoppages were condemned; full cooperation in improving apprentice training programs was urged; modification or elimination of fringe benefits under project arrangements was recommended as a means of enabling a union contractor to compete more favorably with open shop operators;

(*Continued on page 158*)

Officers of Building and Construction Trades Dept.

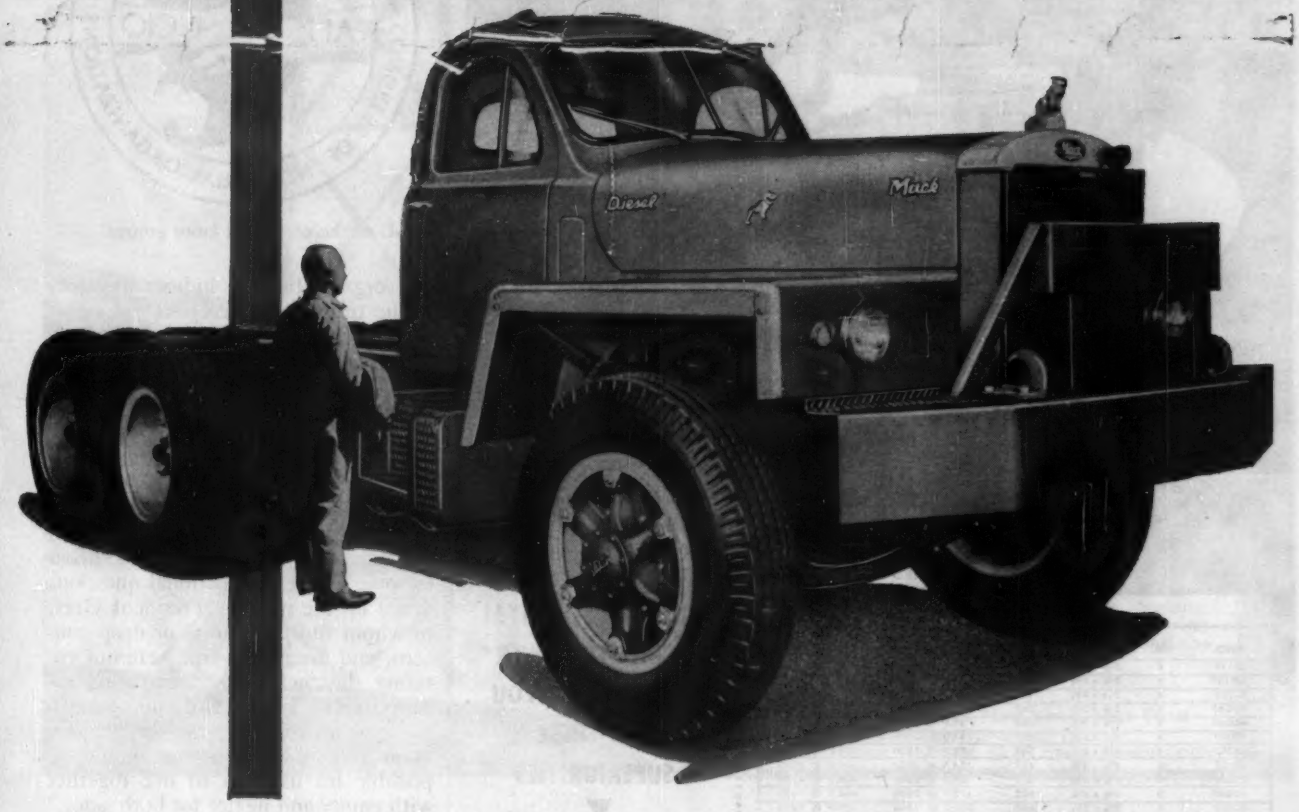
Pres.—Richard J. Gray
Sec.-Treas.—Frank Bonadio
Vice Pres.—

1st—Wm. J. McSorley (Lathers)
2nd—Wm. E. Maloney (Engineers)
3rd—M. A. Hutchinson (Carpenters)
4th—Peter Fosco (Laborers)
5th—L. M. Rafferty (Painters)
6th—Gordon M. Freeman (Electrical)
7th—Peter T. Schoemann (Plumbers)
8th—Dave Beck (Teamsters)

Gray and Bonadio continue to serve unexpired terms. All eight vice presidents, previous incumbents, were unanimously re-elected. Executive Council consists of all except Sec.-Treas.

NEW Mack B-80 SERIES—

a money-making giant for heavy construction



New features make this rugged six-wheeler more powerful, sturdier . . . and a greater work producer than even its great Mack predecessors!

GREATER DIESEL POWER. Mack's famous Thermodyne® Diesel is now turbo-charged to 205 h.p.; other turbo-charged diesel power up to 262 h.p. is available.

MORE BRAKING POWER. Mack Thermodyne Diesel engines are recognized as having more braking power than any other. Now new exhaust brakes increase their retardation by 50%, while adding greatly to brake lining life.

NEW TRANSMISSIONS. From 10 to 20 speeds, with a wide range of options of final drive ratios to meet any operating conditions. Complete one-box units—no auxiliary transmissions or two-speed axles are necessary.

SQUARE-CUT MILITARY FENDERS. Make the Mack B-80 series look even more like the sturdy work-champions they are! Functional too—they provide strong, steady working platforms.

IMPROVED MACK BALANCED BOGIE. Assures positive traction no matter what the load or terrain. Mack's exclusive Power Divider delivers torque to each wheel in proportion to its traction, eliminating useless wheel slippage and spinning.

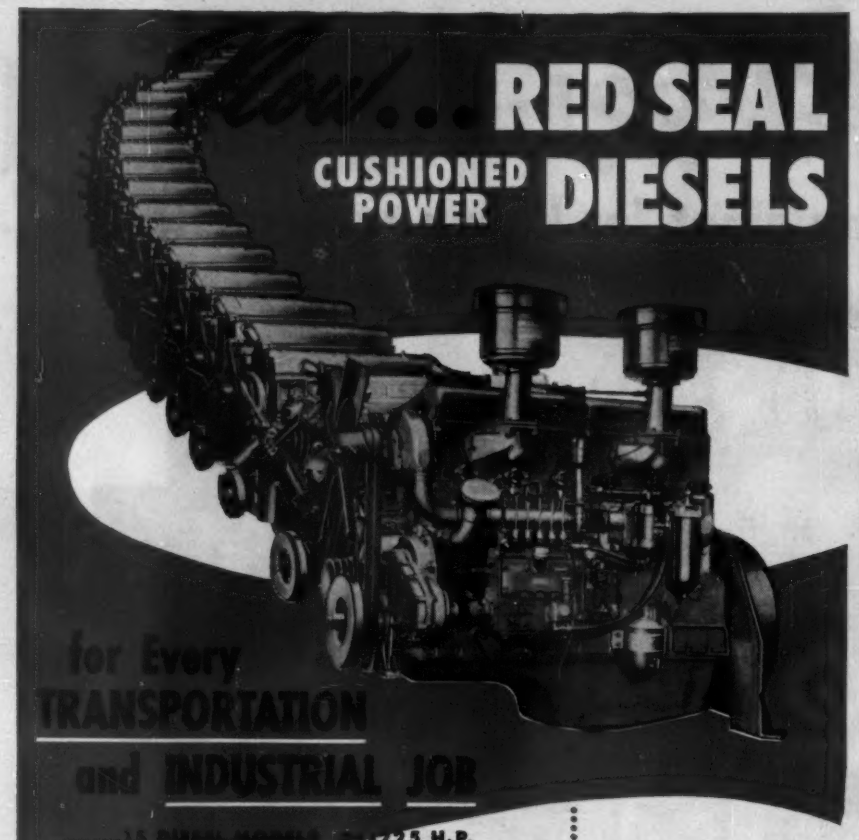
UNITIZED CABS. Roomier, stronger, thoroughly ventilated Mack "B" cabs are more comfortable and fully accessible. "Unitized" construction—radiator, fenders and cab mounted as integral unit at 4 points—means longer cab life, greater stability.

FULL RANGE. 11 models to choose from, giving you a complete selection of sizes and capacities to meet your own needs exactly.

You get *more* power—*greater reserve* power—to pull through with any load, on the tightest schedules when you put new Mack B-80's on your jobs. And you get all the features that you need for top efficiency and performance in the field, too! For the full story, see your Mack branch or distributor.

3471

MACK TRUCKS Empire State Building, New York 1, N. Y.



...225 H.P.

INDUSTRIAL					
MODEL	CYL.	BORE & STROKE	DISPLACEMENT	HP @ GOV. SPEED	MAX. TORQUE @ RPM
ZD129	4	3½ x 3⅝	129	34.0 @ 2000	87.5 @ 1200
GD157	4	3⅝ x 4⅜	157	39.0 @ 2000	113.3 @ 1200
ED201	4	3⅝ x 4⅞	201	43.8 @ 2000	145.0 @ 1100
HD243	4	3¾ x 5½	243	54.7 @ 2000	178.0 @ 1200
HD260	4	3⅞ x 5½	260	59.3 @ 2000	188.0 @ 1100
HD277	4	4 x 5½	277	63.0 @ 2000	201.0 @ 1100
JD382	4	4½ x 6	382	72.5 @ 1600	276.0 @ 1000
TD427	6	4½ x 4⅝	427	106.5 @ 2000	310.0 @ 1200
RD572	6	4⅝ x 5⅝	572	154.0 @ 2000	428.0 @ 1300
VD603	8	4⅜ x 4¼	603	175.0 @ 2600	448.0 @ 1200
SD802	6	5⅛ x 5½	802	202.0 @ 1800	620.0 @ 1200

TRANSPORTATION					
MODEL	CYL.	BORE & STROKE	DISPLACEMENT	HP @ GOV. SPEED	MAX. TORQUE @ RPM
TD6427	6	4½ x 4⅝	427	116.0 @ 2400	307.0 @ 1200
RD6572	6	4⅝ x 5⅝	572	172.0 @ 2400	428.0 @ 1300
VD8603	8	4⅜ x 4¼	603	182.0 @ 2800	466.0 @ 1200
SD6802	6	5⅛ x 5½	802	223.0 @ 2200	620.0 @ 1200

Red Seal Cushioned Power* Diesels are getting the call for more and more of the really tough jobs, not only in transportation, but in industry, in construction, and on the farm. Why? Because Cushioned Power Diesels provide ALL the advantages of the Diesel principle, with none of the drawbacks common to Diesels of conventional design. You'll be far ahead, all the way, standardizing on equipment built around dependable Red Seal Cushioned Power—or using it to replace heavier Diesels of conventional design.

*TM REG.

CONTINENTAL MOTORS — Powerful as the Nation — AMERICA'S STANDARD

ONLY CONTINENTAL CUSHIONED POWER* DIESELS GIVE YOU ALL THESE SUPERIORITIES

▼

HIGH ECONOMY—due to higher combustion efficiency • MORE USEFUL POWER—pressure on pistons applied at most effective crank angle • REDUCED PRESSURE PEAKS—for smoother, quieter running, and long life of parts • SELF-CLEANING NOZZLES—automatically cleaned with each injection; assure smoother running • LOW UPKEEP COSTS—reduced pressures permit use of lower cost high production parts • EASY STARTS ON DIESEL FUEL—no auxiliary power needed.

•

Continental Motors Corporation

MUSKEGON • MICHIGAN

6 EAST 45TH ST., NEW YORK 17, NEW YORK • 3817 S. SANTA FE AVE., LOS ANGELES 58, CALIF.
6218 CEDAR SPRINGS ROAD, DALLAS 9, TEXAS • 910 S. BOSTON ST., ROOM 1008, TULSA, OKLA.
1252 OAKLEIGH DRIVE, EAST POINT (ATLANTA) GA.

SEAL of the combined labor groups.

and organization of industrial plants at the time of construction was vigorously proposed.

Amicable solutions to existing conflicts and achievement of harmonious relations were repeatedly stressed as the key to labor's welfare.

It was in this spirit that formation of a permanent committee between the Building Trades and Industrial Union Departments (the old CIO) was agreed to as a temporary solution to some of the jurisdictional questions raised by the merger. President Gray, to whom the problem is of deep concern, said the two groups were not entering the merger as "competing organizations." Object of the committee, he stressed, is "to explore the situation and find out how it would be possible for us both to live together with equity and justice for both sides."

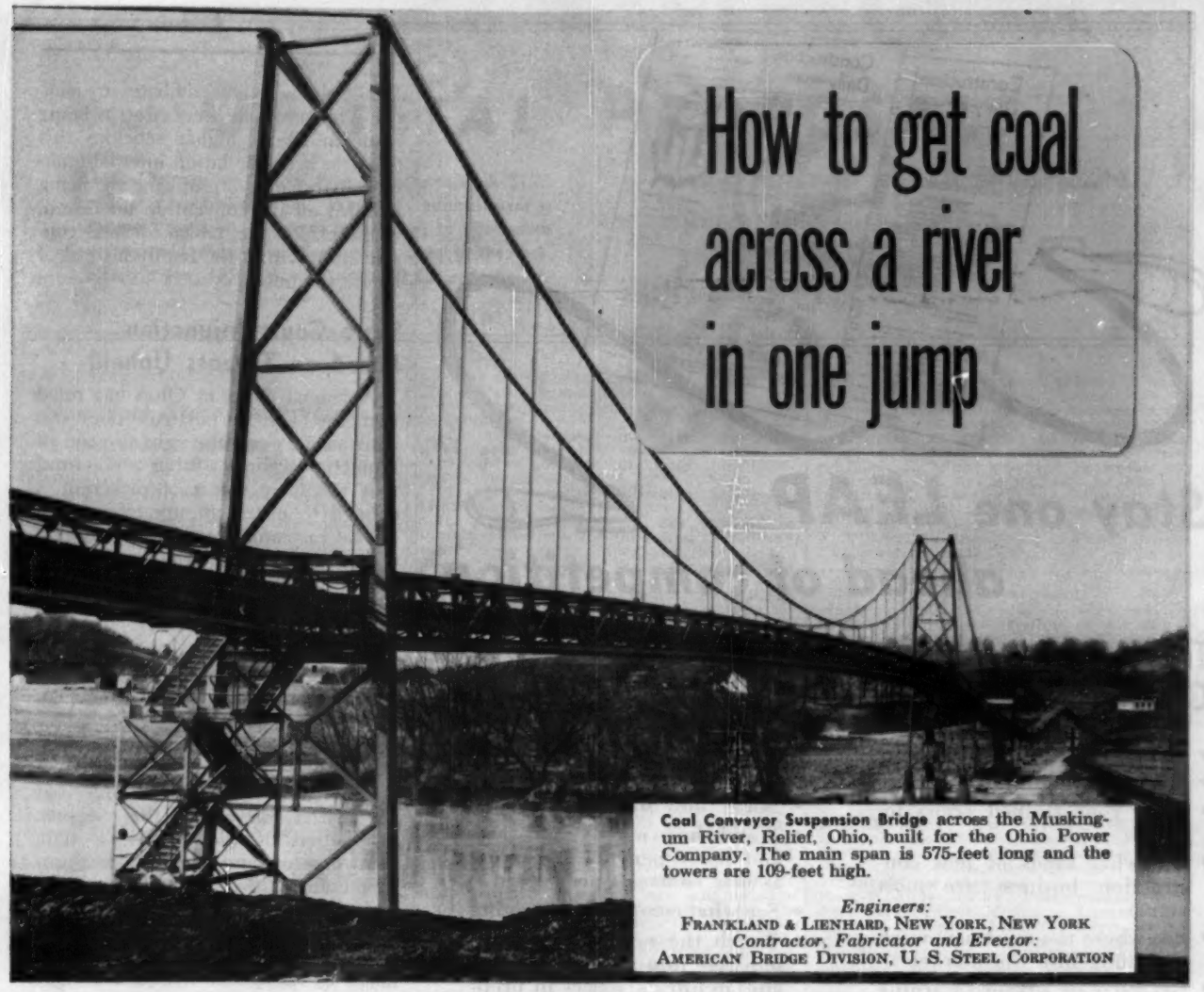
• **A gamble?** It was this willingness to gamble on the future—demonstrated by other unions as well—that made the merger possible.

In his reply to Mike Quill's firey attack upon the merger, Walter Reuther made it clear that the new alliance, as the instrument of a "finer, stronger and more dedicated labor movement" is "a matter of believing, of faith in ideals, in principles and in ourselves." And what will really count, he continued, is "the spirit we put into the implementation of the merger."

George Meany took the same approach just before the AFL convention adjourned. Acknowledging the misgivings with which many had entered the merger, he urged the members of the new federation "to carry forward in the spirit of give and take" essential to unity. "If we approach the future in that spirit," he said, "we can overcome any and all difficulties."

The net result has given the officers and the Executive Council of the new federation a heavy responsibility.

(*Continued on page 160*)



How to get coal across a river in one jump

Coal Conveyor Suspension Bridge across the Muskingum River, Relief, Ohio, built for the Ohio Power Company. The main span is 575-feet long and the towers are 109-feet high.

Engineers:
FRANKLAND & LIENHARD, NEW YORK, NEW YORK
Contractor, Fabricator and Erector:
AMERICAN BRIDGE DIVISION, U. S. STEEL CORPORATION

Conveyor Suspension Bridge, built with Tiger Brand Prestressed Bridge Strand, does the trick.

Moving coal across a river is costly—especially if you have to handle it two or three times. The Ohio Power Company solved this problem with a coal conveyor suspension bridge. Coal now flows across the river, economically, in a steady stream. There's no extra handling.

The bridge is suspended from two main cables, each composed of four 2" diameter Tiger Brand prestressed, galvanized strands. There are 44 vertical suspenders of 7/8" prestressed, galvanized bridge rope.

Prestressing the strands to one-half their designed breaking strength for several hours is a thorough test of quality of the material. It also produces a cable strand that will not stretch over the years due to use.

American Steel and Wire Division has the engineering experience and complete manufacturing facilities to produce the finest bridge strand and wire rope you can buy. Call or write for further information or contact our nearest distributor. He's listed in the classified directory under "Wire Rope."

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN TIGER BRAND WIRE ROPE

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Stay one LEAP ahead of competition

The Construction Market Letter for Contractors Can help you

- Keep a full job schedule
- Keep your equipment moving
- Hold your trained crews together
- See what kinds of new construction business are most active
- See where the most new work is coming into the market
- Get early or advance warning on material shortages
- Watch how prices are increasing
- Study how bids are running
- Watch how much wage rates and labor benefits are rising as new contracts are signed
- See what competition is doing
- Watch the new work that is moving into the engineers' and architects' offices in preparation for future bids

Ask for sample copies—Ask for the details on what it can do for you. This is a 2-way Service—the CONSTRUCTION DAILY—in 2 big sections

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—24-hour advance news on big bid dates, top jobs, planning ahead, trends, costs and prices, appropriations, major events

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—300 project news items a day: on PROPOSED WORK (averaging over $100 million a day); on BIDS ASKED, LOW BIDDERS AND CONTRACTS AWARDED (averaging over $70 million a day). These name owners, engineers, architects, give job descriptions, dates, locations, estimated costs

For your sample copies of CONSTRUCTION DAILY and information on how this construction market letter can help your business, write to Circulation Manager, CONSTRUCTION DAILY, 330 W. 42 St., New York 36, N. Y.

. . . Labor

While the individual affiliates are jockeying for position, every effort is being made in labor's higher echelons this week, to keep the lid on internal quarrels. Most of the problems are being handled off the convention floor, and, wherever possible, tabled for later consideration within the family instead of before the public eye.

State Court Injunction Based on Threats Upheld

A federal court in Ohio has ruled that the Taft-Hartley Act does not deny a state court the right to issue an injunction against a labor union—and that the mere threat of picketing is enough to justify an injunction.

The case arose out of the building of two new dormitories at Bowling Green State University. Plumbing contractor J. F. Dibble claimed the business agents of a Toledo local of the plumbers union threatened to picket the project unless he agreed to hire only members of the Toledo local. According to the contractor, his employes were members of other locals of the same union.

Overruling the union's claim that the matter was within the exclusive jurisdiction of the NLRB, a state court granted, and later dismissed, an injunction.

The appellate court held that the state court had properly asserted its jurisdiction and that the union had failed to show that it had any right to represent the contractor's employes or to force him to use others in their place.

Labor Briefs . . .

• **Strike ends**—A 10-week walkout against 12 members of the Louisville, Ky., Metal Contractors Assn., has ended with agreement on a new two-year contract giving members of Local 110 of the AFL sheet metal workers union a 37½ cent wage increase. The union gets an immediate increase of 17½ cents, with another boost of 20 cents next August. Previous rate was $2.90.

• **New pact**—Contractors in Maryland and the District of Columbia have reached a new wage agreement with AFL carpenters, engineers, teamsters and laborers for highway and heavy construction. The one-year contract, effective January 1, calls for wage increases ranging from 15 to 27.5 cents. Nearly 10,000 workers, including those on approaches to the harbor tunnel in Baltimore, will be affected by the new rates.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch. (Effective Jan. 1956 the rate will be $2.10 per line)

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: December 15, 1955

New York State Road Works

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 15, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES OF BRUCKNER EXPRESSWAY, SECTION II, FROM BRONX RIVER TO NEW ENGLAND THRUWAY, BRONX COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-80.

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE CROSS-BRONX EXPRESSWAY, FROM CLAY AVENUE TO ARTHUR AVENUE, BRONX COUNTY, WHCH CONSTITUTES CONTRACT NO. SPEC. SM-81.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. M. E. Goul, District Engineer, 325 West Main Street, Babylon, Long Island, N. Y.

(c) Mr. William Trainor, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms for each contract is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for Spec. SM-80 is $44,820.00 and for Spec. SM-81 is $7,600.00.

Proposal for each contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposals must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,250.00 for SM-80 and the sum of $380.00 for SM-81. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
PUBLIC WORKS

Bids: March 15, 1956

City of Port Elizabeth, Union of South Africa.

WATER AUGMENTATION SCHEME
CONTRACT NO. 3
MANUFACTURE AND SUPPLY OF
PIPES AND SPECIALS
AND
CONSTRUCTION OF PIPELINE

Tenders are invited for the manufacture and supply of Steel or Concrete Pipes and Specials, and the construction of the sections of pipeline under Stage 2 of the City's Water Augmentation Scheme.

The approximate lengths of pipeline are as follows:—

(1) 60" nominal diameter pipeline—4,600 linear feet.
(2) 52" nominal diameter pipeline—89,300 linear feet.
(3) 46" nominal diameter pipeline—44,600 linear feet.

In addition, tenderers are invited to submit quotations for the manufacture and supply only of the Pipes and Specials for Stage 3 of the City's Water Augmentation Scheme.

The estimated requirements under Stage 3 are as follows:—

(1) 52" nominal diameter pipeline—72,300 linear feet.
(2) 46" nominal diameter pipeline—20,800 linear feet.
(3) 33" nominal diameter pipeline—72,100 linear feet.

The Contract Documents and Drawings are available for inspection by prospective Tenderers at the office of the City and Water Engineer during normal office hours.

Two copies of the Documents and half-scale prints of the Drawings will be supplied to prospective Tenderers on payment of a deposit of Two Hundred Pounds (£200), which amount will be refunded to bona fide Tenderers on receipt of one copy of the Documents properly completed and duly signed by the Tenderer.

Extra copies of the Documents and half-scale prints of the Drawings will be supplied, at the discretion of the Engineer, on a payment of Twenty-five Pounds (£25) per copy, which sum will not be refunded.

Tenders accompanied by a cheque for One Thousand Pounds (£1,000) marked for payment by a Bank and valid for six (6) months, shall be delivered to the Town Clerk, City Hall, Port Elizabeth, South Africa, not later than 12.45 p.m. on the 15th March, 1956, on which date they will be opened in public in No. 1 Committee Room, City Hall, at 2.15 p.m.

The Council does not bind itself to accept the lowest or any tender.

Municipal Notice No. 432, 11th November, 1955. (0241/070.

G. H. BREWER
TOWN CLERK.

Bids: January 5, 1955

The Port of New York Authority

AIRPORT EMERGENCY TRUCK
PROPOSAL NO. 721

Sealed proposals for furnishing one airport emergency truck for Teterboro Airport, Teterboro, New Jersey, will be received at the office of the Director of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, until 11:00 A.M. (E.S.T.), Thursday, January 5, 1956, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase and Administrative Services.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for construction of a section of Amvets Memorial Highway, Federal Aid Project U-344(6), including a Clover Leaf Traffic Interchange, Three Bridges and Four Reinforced Concrete Box Culverts, extending into the City of BROCKTON and Towns of AVON and STOUGHTON will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. of TUESDAY, DECEMBER 20, 1955, and at that place and time publicly opened and read. Proposal guaranty: $96,000. Charge for plans and proposal forms: $30.00; amount returnable only to bidders. Complete information at above address; plans on display at District offices. Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work. By: JOHN A. VOLPE, Commissioner of Public Works. November 26, 1955.

U. S. Government

Sealed bids for completion of air conditioning system in the Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio, will be received until 2:00 P.M. CST on December 21, 1955, in Rm. 528 Court House, 219 South Clark Street, Chicago, Illinois, and then publicly opened in Rm. 528. Bidding material may be obtained from Public Buildings Service, Rm. 1304 General Services Building, 19th & F Sts., N.W., Washington, D. C., EX. 3-4900, Extn. 2397. Fred S. Poorman, Deputy Commissioner of Public Buildings, General Services Administration.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4580) will be received at Glendive, Montana, until January 5, 1956, for furnishing labor and materials for Fort Peck-Whately 69-kv Transmission Line, Fort Peck Project, Montana. Location near Nashua, Montana. Principal items are 114 structures, furnishing and constructing structures; 357 assemblies, furnishing, assembling and attaching insulator assemblies; 13.4 miles of line, furnishing and stringing three 336,400 circular-mil ACSR conductors; 13.4 miles of line, furnishing and stringing two ⅜-inch galvanized steel overhead ground wires; and other work. Completion time 120 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 866, Glendive, Montana; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4577) will be received at Lindsay, California, until January 4, 1956, for furnishing labor and materials for Shafter-Wasco Laterals—Lateral 134.4, Station 0+00 to Station 249+25; Lateral 137.2 Station 0+00 to Station 56+49.8, Shafter-Wasco Irrigation District, Friant-Kern Canal Distribution Systems, Central Valley Project, California: Location near Shafter and Wasco, California in Kern County. Principal items are 31,000 cu. yds. excavation for lateral; 115,000 cu. yds. excavation and backfill of pipe trenches; 27,000 lin. ft. furnishing and laying concrete pressure pipe; and other work. Completion time 480 days. For particulars, address Bureau of Reclamation, P. O. Box 525, Lindsay, California; or Building 53, Denver Federal Center, Denver 2, Colorado.
W. A. Dexheimer, Commissioner.

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work
Civil Service Opportunities....
Selling Opportunities Wanted
Selling Opportunities Offered
Employment Agencies
Employment Services
Labor Bureaus

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The advertising rate is $24.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

$1.80 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Box Numbers—counts as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

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Send NEW ADS to ENGINEERING NEWS-RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for December 22nd issue closing December 12th

HIGHWAY ENGINEERS

OVERSEAS AND DOMESTIC

Applications now being accepted for a limited number of additional openings.

Foreign project located near Bangkok, Thailand requires qualified field engineers and location surveyors with extensive highway experience as construction inspectors, party chiefs or instrumentmen; ages 28 to 45, degree or college background. Bachelor status only; excellent salaries and allowances; free food and lodging.

Openings for draftsmen and junior design engineers in our St. Louis office require young men, preferably with degrees, with one or two years experience. Positions available now offer excellent opportunities for the future.

Field men with highway location experience are invited to inquire regarding openings on survey parties for midwest projects.

Top salaries commensurate with education and experience, plus employee benefit and retirement plan, paid vacations; sick leave and paid holidays. Write for application form.

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LARGE DETROIT AUTOMOTIVE MANUFACTURER HAS THE FOLLOWING REGULAR STAFF, NOT SINGLE PROJECT, POSITIONS:

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Qualified Engineer having long industrial construction experience, good knowledge of cost analysis, capable of producing fast, accurate and orderly arranged cost estimates for projects with assistance in mechanical and electrical phases; some experience in writing specifications, analyzing construction and maintenance project bids. Some of the work involves field surveys and inspection of work being done by contractors.

PROJECT ENGINEERS

Must have field experience in new construction and major alterations. Requires ability to check estimates and coordinate prime contractors, and capacity to handle all phases of project. Engineering Degree preferred.

P-8369, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

ENGINEERS

Foreign Service

Graduate Chemical, Mechanical, and Electrical Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of project and process engineering. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30
ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE, NEW YORK 22, N. Y.

ENGINEER WANTED

Engineer and Maintenance Supervisor for Kalamazoo Public School System. Should have degree in civil, architectural or structural engineering and some experience in an architectural firm or in construction work. Apply to C. C. CRAWFORD, Secretary-Business Manager, Kalamazoo Public Schools, 306 E. Lovell Street, Kalamazoo, Michigan.

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and
ARCHITECTS
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NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Engineers experienced in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience, references and salary requirements. Location Ohio. P-8294, Engineering News-Record.

Wanted: Bridge & Highway designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-8381, Engineering News-Record.

Registered Architect, for association in Alaska. Potential $12000 plus send resume airmail to Phillco Engineering Service, Box 464, Fairbanks, Alaska.

Architectural draftsman for school and church buildings. Must be capable of doing structural steel designs. Need experienced man qualified to take responsibility. Write P. O. Box 278, Lancaster, Ohio, giving qualifications, experience and salary or phone Lancaster 2243-W for appointment.

Wanted: Tunnel superintendent and shifters experienced in both heavy earth and rock tunnels. Location: Colorado and Pennsylvania. State age, experience and salary desired. P-8341, Engineering News-Record.

Engineer-Estimator for building construction work in Utah. An engineer for building construction work qualified to estimate and layout all phases of building construction. Please give training, experience and references. P-8465, Engineering News-Record.

Graduate Civil Engineer excellent opportunities with nationally recognized organization engaged in engineering service work in highway and concrete fields. Location Kentucky and adjacent states. Permanent position. Salary based on qualifications and experience. Car allowance and expenses. Excellent benefits and retirement program. P-8490, Engineering News-Record.

Office Manager, for American construction company in Ecuador. General business administration, personnel matters, general and cost accounting, material and equipment control. Latin American experience and Spanish language ability desirable. Airmail full details of experience, personal data, references, and salary rquirements to Apartado 4665, Guayaquill, Ecuador.

Bridge Designers — Civil Engineering graduates of accredited U. S. Schools; at least 4 years experience required on design structural steel and reinforced concrete railroad and highway bridges. Send complete details, education, experience, salary requirements first letter. All applications acknowledged; qualified men will be interviewed. P-8501, Engineering News-Record.

Wanted: Construction superintendent for South American Hydro-electric Development. Must have had experience in building heavy reinforced concrete structures, concrete lined pressure tunnels, penstocks, etc., as well as experience in power plant equipment installations. Send complete information on experience, references, salary requirements and when available. Call or write C. W. Brown, Gilbert Associates, Inc., Reading, Pennsylvania—Telephone number 5-4361.

(Continued on page 164)

HIGHWAY ENGINEERS

Junior positions in California's huge highway program. High level professional experience with excellent promotional opportunities offered to recent college graduates in civil engineering. $395 to start with raise after 6 months. Positions open at this level only. Write for illustrated booklet, Section E, State Personnel Board, 801 Capitol Avenue, Sacramento 14, California.

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McKee with more than 50 years of successful operation, doing business all over the world; is one of the largest, oldest and best known engineering and contracting firms in the business. The McKee organization continues to grow and expand, thereby offers many present and future opportunities for qualified and experienced engineers and designers in the following fields:

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Applicants should have at least five years' of experience.

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P-8418, Engineering News-Record
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OVERSEAS AIRBASE
Mild Climate!

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LABORATORY TECHNICIAN
SOILS ENGINEER

Send full resume—confidential—including salary desired—to:

P-8374—Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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HIGHWAY
ELECTRICAL

for work on

Bridges, Expressways, Turnpikes

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Permanent positions with unique benefits for sincere ambitious men—submit educational background, experience record, salary requirements and availability.

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Must have experience in bridge stresses, and be able to handle all engineering problems for Drawing Room consisting of approximately eleven Detailers and Checkers. Address all replies to D. H. Bradley,

The Mount Vernon Bridge Co., Mt. Vernon, Ohio

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Degree and responsible experience of at least three years structural steel or reinforced concrete on bridges, buildings and other heavy structures.

Civil—degree with experience in highway design, hydraulics or drainage and sewer systems.

Company paid hospitalization, retirement plan and vacations. Send complete resume and salary requirements to

PALMER & BAKER, INC.
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for work on
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PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY
PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE
INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER
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POSITIONS VACANT

(Continued from page 162)

Civil Engineer — Experienced in land planning, subdivision engineering and construction. Permanent position with excellent opportunity in Cincinnati, Ohio. Write Model City Development Co., 928 North Bend Road, Cincinnati 24, Ohio.

Recent civil engineer graduate to work for large electric power utility on transmission line layout and design. Experience desired but not essential. Age up to 30. Some travel required. Give resume of education, experience and references. P-8563, Engineering News-Record.

Estimator — Fully qualified and experienced building estimator to locate in Texas, experienced in preparing estimates on large building projects. Position permanent with excellent opportunity and salary commensurate with ability. Please furnish experience record, training, salary desired, telephone number and address in first response. P-8555, Engineering News-Record.

Wanted Superintendent-Engineer — by substantial N. Y. State paving firm, to handle heavy excavation and grading work. Must have C. E. degree and at least 5 years field experience in supervisory capacity. This job requires only top-flight ability. To the right person this job should return an annual income of $25,000.00. Our personnel know of this ad. P-8572, Engineering News-Record.

Wanted: Project Manager for internationally known contractor. Heavy road, earthwork and paving experience. Must be graduate civil engineer. Age to 45 years. Possess good personality and business judgment. Ability to speak and read French desirable. P-8544, Engineering News-Record.

Construction Supt. capable of operating multi-million dollar building projects. Experience on industrial, commercial and institutional buildings required. Kindly submit work history and references, stating specific buildings you have constructed, their approximate value, and type of construction. Also state age and marital status. Enclose recent photograph if possible. Interview will be arranged & salary discussed, if application warrants. Location: North Western Ohio. P-8574, Engineering News-Record.

Associate Civil Engineer to work directly under the City Manager and act as Assistant to the City Manager. Applicants must have had at least two years experience in responsible professional engineering work. Give full information as to education and submit a sample drawing. P-8524, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

Wanted Salesman or agent for Boston territory for complete line of concrete forms and special ties. Must be able to take off drawings for concrete requirements. Salary and bonus or commission with drawing account. RW-8558, Engineering News-Record.

POSITIONS WANTED

Industrial Construction Manager. Civil Engr., exper. multi-project supervision. Job-planning & cost-control specialist. 6430 Lemon Ave., Long Beach 5, Calif.

Supt. Heavy Const. blasting, open cuts, shafts, tunnel quarry, coral rock. Earth moving and concrete. PW-8380, Engineering News-Record.

Highway and traffic engineer desires connection with firm doing turnpike work. Prefer a Midwest location. PW-8375, Engineering News-Record.

Civil Engineer B.S. Degree age 27 seeks overseas position 3 years experience in highway, bridge construction, hydraulics and dredging. Working at present with a large construction company in Venezuela. Speak and write Spanish and English fluently. Available immediately. PW-8479, Engineering News-Record.

Construction Engr — 19 years heavy and industrial constr. experience (field constr engr for large corporation, office manager for contractor, Army Engrs WW II, and other field experience). Serious, reliable, cost-conscious, excellent at project administration, good at reports, & know accountancy. Desire perm position with corporation, consultant or large construction company. Will move, will travel, available after Jan. 1st. PW-8458, Engineering News-Record.

Past eight years small city superintendent construction maintenance utilities. Desire relocate foreign or mid-Atlantic. PW-8530, Engineering News-Record.

Wanted — By construction supt. or gen. foreman 30 years experience, all types dirt moving with heavy equipment, bridge piers, sewers & water lines. PW-8577, Engineering News-Record.

Executive Engineer — supt. licensed P.E., designer with consultant experience and intimate knowledge of trades. Desires position with expanding organization interested in accelerating their work. Willing to assume full responsibility. PW-8576, Engineering News-Record.

Engineer, recent administrative assistant to executive in charge of a unusually large construction program, age 33, seeks challenging position. Write PW-8575, Engineering News-Record.

Construction Manager-Superintendent. Mechanical trades. 20 yrs. experience in power houses, chemical plants-process piping. Administration, sales, estimating. Engineering background. Have large following men and superintendents. Best of references. PW-8556, Engineering News-Record.

Surveyor, Lic. N. Y. and N. J. desires position southern counties N. Y. or Northern N. J. PW-8557, Engineering News-Record.

Architectural D'rftsm'n-struct. engr. industrial bld'gs., prefer Construction office. PW-8560, Engineering News-Record.

Engineer, registered, B.S., M.S. in civil engineering and soil mechanics. Varied experience in design, control, laboratory testing; research on highways and building foundations. Experienced on airfields, earth dams, and structural design. Married, age 36. PW-8566, Engineering News-Record.

Project Engineer or Superintendent, graduate. 10 years experience—heavy, industrial, refinery construction; dredging and harbor installations; mining and smelter plants, transfer stations, air field construction. Prefer foreign assignment. Available immediately. PW-8565, Engineering News-Record.

Office Manager, Chief Accountant, field or home office, capable of taking complete charge of any size project, twenty years diversified experience, sober & reliable willing to take foreign assignment. PW-8567, Engineering News-Record.

Estimator—Engr bldgs public work all trades. 4 yrs at top firm. Responsible. $10,000 TU 2-5384 (NYC)

Civil Engineer N.Y.S.P.E., B.S.C.E., age 34 5 yrs project engineer, highways, bridges, subdivisions etc. for consultant. Desires to relocate as an associate or future partner. PW-8570, Engineering News-Record.

Supervisory position wanted, contractors supt. or architect-engineers representative. 23 yrs heavy industrial & public structures. Age 45, civil engineer. PW-8569, Engineering News-Record.

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equipped with power shift transmission.
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30" or 36" complete. Need approx. 1400 feet or 7 conveyors approx. 200' each.
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255 PC P&H 20-ton truck crane 80' folding boom, 30' jib
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16 "	27 1/2" x 101"	4,400 lbs.

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Amer. Manganese Steel Div., Amer. Brake Shoe Co. 138
Amer. Steel & Wire Div., U. S. Steel Corp. 8, 159
Armco Drainage & Metal Prod., Inc. ... 18
Atlas Powder Co. 55
Automotive & Aircraft Div., Amer. Chain & Cable Co. 68

Barber-Greene Co. 153
Bay City Shovels, Inc. 111
Bethlehem Steel Co. 79, 123
Brunner & Lay, Inc. 96
Bucyrus-Erie Co. 13
Butler Bin Co. 73
Butler Mfg. Co. 33

Cast Iron Pipe Research Assoc. 30, 31
Caterpillar Tractor Co. (Insert) 83-90
Chicago Bridge & Iron Co. ..... 2nd Cover
Chicago Pneumatic Tool Co. 121
Chrysler Corp., Ind. Eng. Div. 15
Cleveland Trencher Co. 74
Cole Mfg. Co., R.D. 76
Const. Machy. Co. 118
Continental Motors Corp. 158
Crucible Steel Co. of Amer. 132

Dodge Div., Chrysler Corp. 119
Dravo Corp. 44
Dresser Mfg. Div., Dresser Ind. 93

Earle Gear and Machine Co. 96
Eastman Kodak Co. 58
Economy Forms Corp. 92
Enjay Co., Inc. 29
Euclid Div., G.M.C. 4, 5

Fennel Instr. Corp. of Amer. 128
Filotecnica Salmoiraghi, Inc. 12
Firestone Tire & Rubber Co. 80
Foster Co., L.B. 114

Gahagan Const. Corp. 82
Garrett Corp. 97
Granco Steel Prod. Co. 116, 117
Griffin Wellpoint Corp. 56
Grinnell Co., Inc. 106
Gulf Oil Corp. 154
Gunite Const. Corp. 91

Hamilton Mfg. Co. 9
Hartford Fire Ins. Co. 78
Hartford Accident & Ind. Co. 78
Hendrix Mfg. Co., Inc. 137
Hooker Electrochemical Co. 105
Hose-McCann Telephone Co., Inc. 94

International Salt Co., Inc. 100
International Steel Co. 60
Intrusion-Prepakt, Inc. 75

Jaeger Machine Co. 82
Johns-Manville Corp. 47, 109
Jones & Laughlin Steel Corp. 11
Joy Mfg. Co. 115

Kinnear Mfg. Co. 96
Koehring Co., The 146, 147

Lamson & Sessions Co., The 156
Larsen Prod. Corp. 76
Lehigh Portland Cement Co. 124
LeTourneau-Westinghouse Co. ..61, 63, 65, 67
Link Belt Speeder Corp. 20
Lock Joint Pipe Co. 16
Lufkin Rule Co. 94
Luria Engr. Corp. 66

Mack Trucks, Inc. 157
MacWhyte Co. 148
Madsen Iron Wks., Inc. 133
Mahon Co., R.C. ..... 3rd Cover
Manitowoc Engr. Wks. 127
Manu-Mine Research & Dev. Co. 6
Masonite Corp. 41
Maxon Const. Co. 134
McConnaughay, K.E. 62
McKiernan-Terry Corp. 52
Merritt-Chapman & Scott Corp. 77
Miller Electric Mfg. Co. 53
Mississippi Glass Co. 139
Moretrench Corp. 72

National Clay Pipe Mfrs., Inc. 103
National Surety Corp. 120
National Tube Div., U.S. Steel Corp. ... 151
Nelson Stud Welding Div., Gregory Ind., Inc. 112, 113

Ozalid Prod. Div., Gen'l. Aniline & Film Corp. 135

Pittsburgh Corning Corp. 37
Pittsburgh-Des Moines Steel Co. 95

Raymond Concr. Pile Co. 3
Richmond Screw Anchor Co., Inc. 64
Ric-Wil Inc. 57
Rockford Clutch Div., Borg-Warner 91
Russell Burdsall & Ward Bolt & Nut Co. 69

St. Paul & Tacoma Lumber Co. 32
Servicised Prod. Co. 92
Smith Engr. Wks. 7
Spencer, White & Prentis, Inc. 40
Sprague & Henwood, Inc. 91
Staedtler Co., J.S. 2
Stang Corp., John W. 129
Superior Lidgerwood Mundy Corp. 94

Thew Shovel Co., The 14
Timber Structures, Inc. 126
Timken-Detroit Axel Div., Rockwell Spring & Axle Co. 98, 99
Timken Roller Bearing Co. ..... 4th Cover
Tube Turns, Inc. (Insert) 49, 50

Union Oil Co. 143
U.S. Pipe & Foundry Co. 145
U.S. Steel Corp. 42, 43

Viber Co. 81

Warren-Knight Co. 139
Wisconsin Motors Corp. 133
Wrought Washer Mfg. Co. 125

Professional Services 168-170

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F. J. Eberle, Ass't Mgr.

Employment Opportunities ... 162-164
Educational 164
Proposals 159-161
Equipment (For Rent, Sales Wanted) ... 164-167

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Editorials

School Federal Aid but Self Help, Too

COMMUNITIES THAT CANNOT BUILD badly needed schools without financial assistance from a higher level of government received heartening news last week. The White House Conference on Education recommended strongly that federal aid be increased for school construction—but with no control "over educational use of funds in local school districts." President Eisenhower most certainly will forward this recommendation to Congress. However, as anxious as the legislators may be to give more assistance for this worthy purpose, they must solve several problems before the money can be voted.

For example, if Congress accepts the White House Conference recommendation that aid be distributed in accordance with need, a definition and evaluation of need must first be made. This will not be an easy task. The states and local districts now collect taxes to pay for schools in many different ways, and the effort made by each varies considerably. Indeed, in many cases, need may reflect unwillingness to tax rather than inability to pay. How can Congress determine which is the case? Also beclouding the issue are state restrictions that prevent local districts from hiking taxes to pay for new schools.

Furthermore, Congress will have to decide for what it will pay. The federal government should not be expected to pump money into schools of substandard construction or of inadequate layout for modern education purposes. Nor should it be expected to contribute toward oversize classrooms, auditoriums and gymnasiums or toward any facility of questionable necessity, such as swimming pools and football stadiums. Consequently, Congress will have to make certain that acceptable minimum and maximum standards are set up before any money is paid out. Also, provision will have to be made for checking adherence.

In view of these and many other problems, the date of availability and amount of federal aid obviously is uncertain. Some states and most local districts may receive no additional assistance at all. If help does come, it may be too little and too late. Under these circumstances, it is extremely inadvisable for any community needing new schools now to delay construction in the hope of a federal handout. Current needs must still be met by action at the local level.

Standards for New Highways

A VERY PRACTICAL PROBLEM facing all highway departments in connection with new work on the National System of Interstate Highways is that of design standards. The "Geometric Design Standards" of the American Association of State Highway Officials, which have been used for new work on that system in the past, are out of date. Revisions have been made by an AASHO committee, but have not been submitted to the state highway departments for approval because of uncertainty as to what Congress is going to do to aid the states in financing work on that system.

Actually, what amounts to the revised standards was recommended by the Bureau of Public Roads in the report it made to Congress on future highway needs early this year. But applying these new standards to future work on the interstate system will add materially to the cost as compared to the old AASHO standard. This is especially true as applied to rights-of-way.

Many state highway departments consider the wider right-of-way widths called for under the new standards to be unnecessary and generally impractical in urban areas. However, they would be willing to accept them if the federal government plans to pay most of the cost of work on the interstate system, as was proposed by the Clay Committee. But they will not accept them now only to find next year that Congress is going to be less liberal with aid than it appeared to be early this year.

All of which means that much of the final planning for new work on the interstate system must wait until Congress acts on new highway legislation.

Long-Range Public-Works Planning

APPOINTMENT of Maj. Gen. John S. Bragdon (Ret.) to the post of Assistant to the President to serve as coordinator of public-works planning (ENR Nov. 17, p. 26) is a commendable action that should pay large dividends in the years ahead. General Bragdon's new assignment is that of determining what new public facilities will be needed to sustain our expanding economy and of learning to what extent current planning is adequate for meeting those needs as they arise. This latter part of the task doubtless will be the most challenging as it never has been attempted before. Determining what can be done through the construction of public works to offset a business decline was actively studied in the Thirties, but needs restudy in the light of changed conditions.

After he has found where the major gaps are in planning for public works, General Bragdon is expected to encourage public agencies at all levels of government—federal, state, and local—to plug the gaps. This part of the assignment will be the most difficult—and the one for which he will need constructive support from Congress—because General Bragdon and his staff will have no power to direct compliance except on federal work, which will be a relatively small part. States, cities, and towns will have to be persuaded to draw up plans for projects that will be needed. In this persuasion, Congress can help by reviving the plan for making grants for advance planning, which are to be repaid when a project has been approved and financed. One of the main obstacles to advance planning for public works is lack of money to pay for the preliminary studies.

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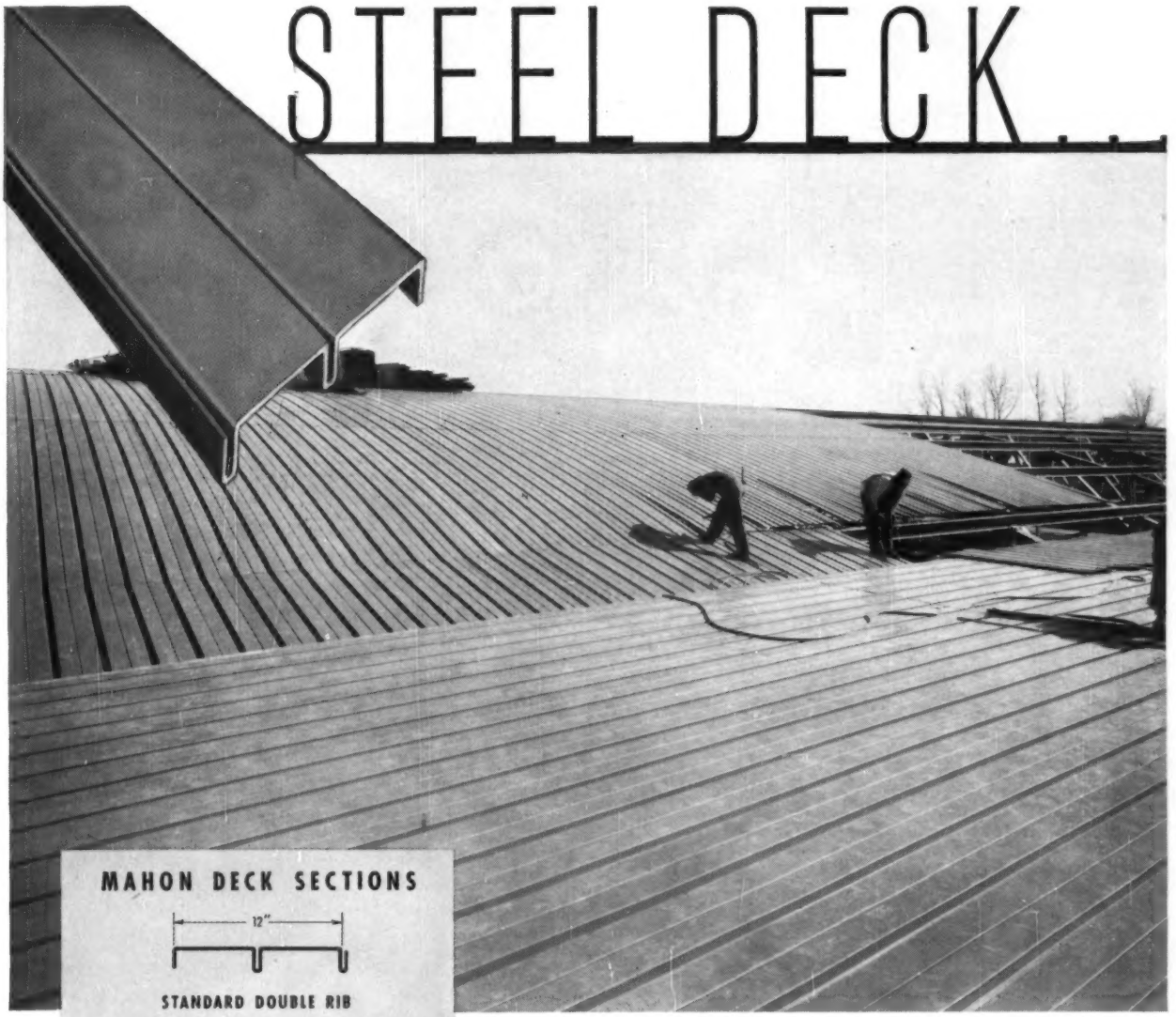

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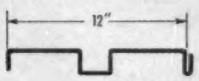

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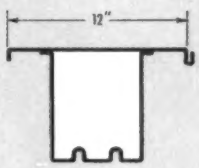

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SECTION M1

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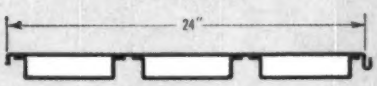

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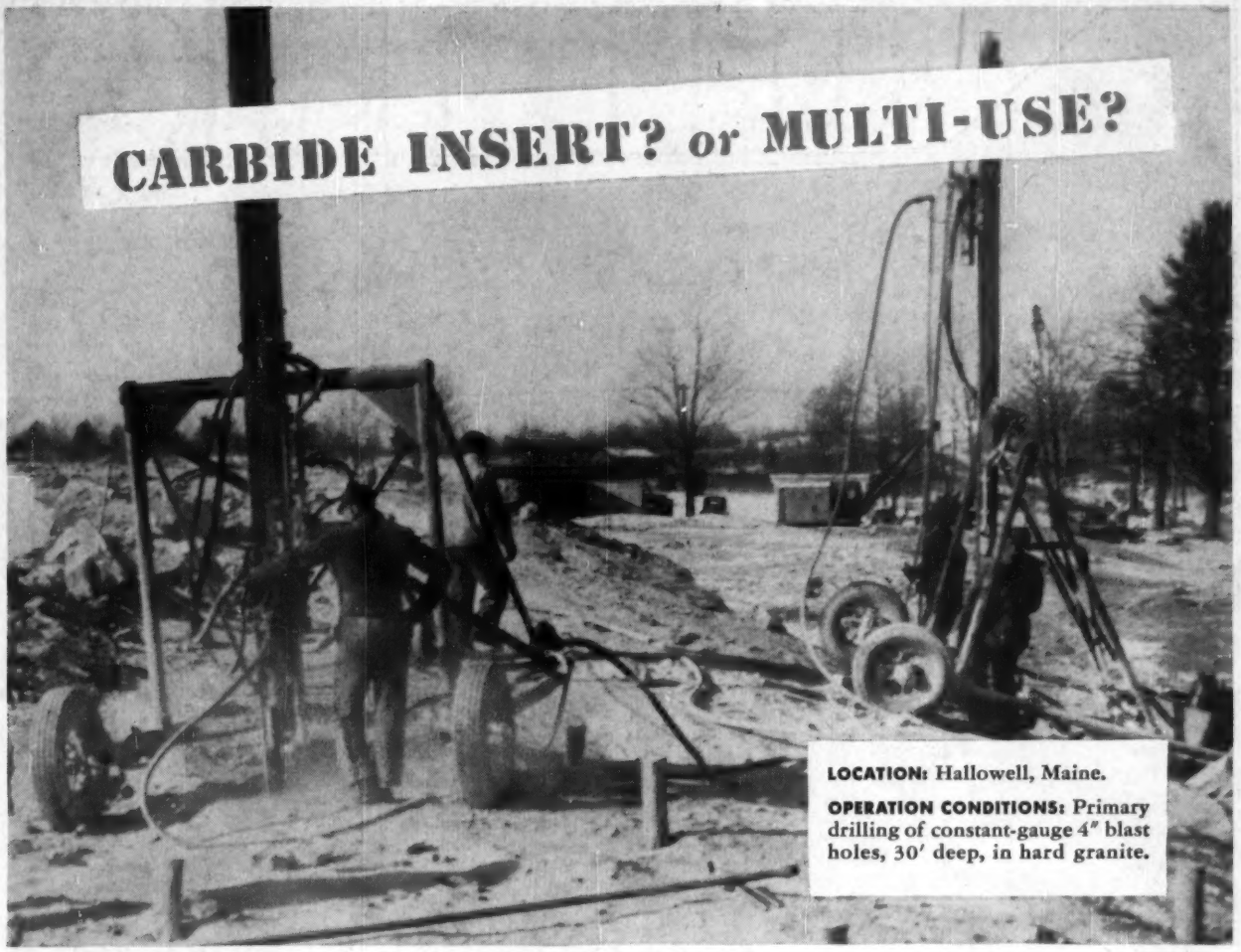
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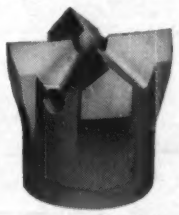

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